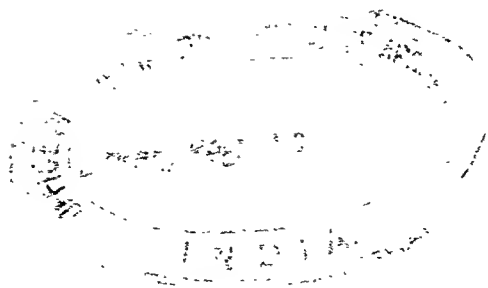


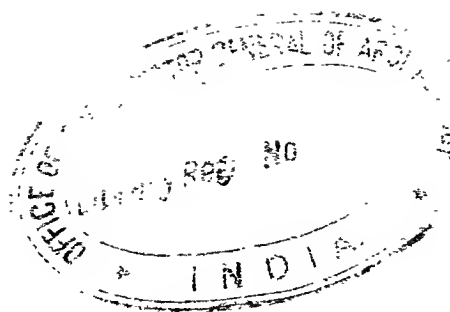
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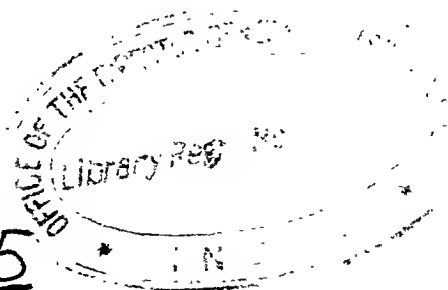


ANTIQUITY

A Quarterly Review of Archaeology



Edited by O. G. S. Crawford, F.S.A.



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Editorial Notes

IN the good old times before archaeology had become a profession, it was quite usual to discuss first principles. Perhaps it was felt that the quest of useless knowledge needed justification. Even today, when 'pure' science can beat applied science on its own ground, the wrong reason is often given for doing the right thing. Possibly such a course may occasionally be justified, or at least excused; but it is a dangerous one, and may ultimately wreck the ship of discovery upon the rocks of self-deception. It is therefore good for the would-be excavator to ask himself, before issuing his appeal, what is the ultimate objective and whether it is served by the proposed course of action?



It is too often assumed nowadays that excavation, if properly conducted, is always and everywhere a good thing. That is not so. There are only two excuses for undertaking an excavation—the acquisition of valuable knowledge or the imminent destruction of the site. If a site is to be covered by buildings, evidence will be destroyed and excavation at some remote date will be made more difficult. If a site is being destroyed for ever by the removal of the soil in bulk, obviously there will be nothing left to dig. Under such circumstances

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an imperfect examination and a defective record are better than none. That is why we have risked annoying our readers by appealing on behalf of certain urgent local excavation funds. Building at Caerleon and Colchester, and deliberate vandalism at Alchester, threaten to destroy evidence, and the respite given by cupidity and ignorance is short. Excavation on such sites has obvious claims to priority, even when less important places are concerned.



But suppose an appeal is made for money to excavate a virgin site that is in no danger? Obviously each case must be dealt with on its merits; but we consider that there is today a strong *a priori* case *against* undertaking any such work, especially if the site belongs to a class which has already received the attention of competent excavators. Certainly it should not be undertaken unless it can be carried out as completely as, let us say, the excavation of Silchester and Richborough by the Society of Antiquaries of London; even so, it may be doubted whether, at the moment, the money might not be better employed in support of 'S.O.S.' work elsewhere.



Here we come up against the besetting sin of provincialism. So far as our national interest is organized at all it is organized by counties, and what might be a powerful body of opinion is robbed of most of its force by being split up into 48 or more parts. Consequently we have the absurd spectacle of two groups in two neighbouring counties, the one trying unsuccessfully to collect the miserable sum required to excavate a threatened site before it is too late, the other raising a substantial sum to carry out a wholly unnecessary dig on a site of no urgent importance. And this is the state of affairs at present throughout the country. Money and labour are being frittered away on sites that can wait, while other sites are being destroyed a few miles away. If confirmation of this were needed, it would be enough to glance through the annual catalogue of destruction, most of it deliberate, recorded by the Earthworks Committee and published by the Society of Antiquaries. How many of these sites were excavated before they were destroyed? How many were even planned?

EDITORIAL NOTES

Conservation, not excavation, is the need of the day ; conservation not only of purely archaeological features but of the amenities which give them more than half their charm. Who cares for Oldbury and St. George's Hill now that they are infested with villas ? What is the use of preserving the walls of a village—such as were these earthen ramparts—if the site of the village they protected is to be built over ? Combined effort and a little self-denial in the way of excavation, excursions, and even in publication, might have saved these and other sanctuaries for the Nation ; but in such matters our loyalties hark back, not even to the Heptarchy but to a yet earlier prehistoric period of the tribal organization.



In most instances nothing short of the purchase of land is of the slightest use, though in others an intelligent application of the Town-planning Act may suffice. The need is really urgent ; for with the approaching electrification of Southern England, the coniferous activities of the Woods and Forests Department and of private planters, the demands of the Services for land for aerodromes and manoeuvres, the spread of bungalowoid eruptions, and the threat of arterial roads and ribbon-development—with all these terrors imminent, it is unlikely that any open country or downland will be left in Southern England in a hundred years' time. Salisbury Plain is already ruined ; the Sussex Downs are threatened. Dorset and Dartmoor however, survive, and the Cotswolds, though less prolific in prehistoric sites, are still entirely agricultural and unspoilt. A far-sighted policy would gradually acquire large portions and keep them for posterity. Though costly, such a scheme is not impracticable ; the best areas are naturally those which are least valuable for agricultural purposes. Moreover the time for action is *now*, before the price of land is raised by the prospects of development.



We advocate, therefore, a combined effort to preserve ancient sites, *and their amenities*, from those who would destroy both. If excavation is to be undertaken by local societies, let preference be given to threatened sites. Expensive nibbling at those which are not threatened is to be discouraged when England's past, and with it much of England's beauty, is perishing before our eyes.

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ANTIQUITY enters its third year full of confidence and with an exceptionally interesting programme arranged, both in articles and illustrations. Though our circulation has never stopped increasing our best publicity is through the goodwill of our supporters. With that in mind (and also their good nature) we have ventured to enclose in this number (when sent to a direct subscriber) a leaflet describing the aims and character of ANTIQUITY. We hope our readers will pass it on to friends who are likely to be interested and we shall be glad to post copies to any addresses sent to us.

The SUBSCRIPTION to ANTIQUITY for 1929 is now DUE. We would remind our Subscribers of the form and envelope inserted in the December number and that we shall be glad to have an early response. This does not, of course, apply to those who have already been kind enough to send us their cheques or to those who pay by orders on their banks.

The Magic Origin of Prehistoric Art*

by COUNT BÉGOUEN

THE authenticity of the prehistoric paintings of the caves of Altamira has now been fully recognized for about thirty years, and with the many similar discoveries which have been made in France and Spain an entirely new light has been thrown on the mentality of prehistoric men. We must henceforth acknowledge that they possessed artistic tastes and a well developed aesthetic sense. No longer may we think of them as savages, solely concerned with the most material needs of daily life, but rather as men endowed with well-developed intellect and capable of considering things over and above the mere material side of the struggle for existence.

The discovery of skeletons, obviously buried with care, and surrounded with tools and ornaments, had already proved to us that respect was paid to the dead, and that there was a belief in an after-life. But with the discovery of works of art a fresh avenue of knowledge was opened up before us.

It is perhaps going too far to say that primitive man was an aesthetic being. It has even been stated by one writer on prehistory that 'the people of the Magdalenian period beguiled the leisure of their long winter evenings in fashioning works of art, to decorate the walls of the caves where they dwelt'. This is an obvious exaggeration—Salomon Reinach was the first to protest against this idea of art for art's sake, and to demonstrate that prehistoric art had a utilitarian rather than an aesthetic origin. If the cave-man painted, or drew, or sculptured, it is because he thought thus to aid the quest for his daily needs. Plainly he hoped through pictorial representation to augment his power over the beasts he hunted, just as many primitive peoples do to this day. In fact, according to Salomon Reinach, Art would appear to have had its origin in magic cult and to have developed along the lines of such beliefs. This theory, accepted by Cartailhac, Capitan, Breuil and other prehistorians, is, however, still contested by certain writers.

* Translated by Miss Sylvia Seeley, of the Canadian School of Prehistory in France.

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I hope however to demonstrate by examples from our Pyrenean caves¹ that the idea that Art took rise from a belief in Magic is a far more tenable theory than that of art for art's sake.

However far along the path of civilization the cave-men may have advanced we must always bear in mind the great gulf fixed between their time and ours. Their mentality is not comparable with the average mentality of man today, still less with the mentality of the present *élite*. There are plenty of people even now who possess no sort of artistic sense whatsoever. If this is so at the present time it must have been still more the case in those inclement prehistoric times when existence itself was a fierce struggle. Art certainly had no place as a mere expression of temperament. Rather was it a mysterious weapon wherewith to encounter and overcome the Great Unknown. It is true that the polychrome paintings at Altamira and the magnificent frieze of horses fashioned out of the solid rock at Cap Blanc (Dordogne) might suggest some decorative purpose, because, in both cases, these artistic efforts are plainly visible to any number of people at the same moment, even though the natural light is not very favourable to the frescoes. But we must remember that it is certainly the exception and not the rule to find any prehistoric works of art executed in such manner as to be easily visible to the spectator.

And if Altamira and Cap Blanc are again urged as instances to the contrary, one must remember that in the case of the famous Cantabrian

¹ A very important fact, and one which has considerable bearing on the magic theory, was the discovery in the course of the last fifteen years of some absolutely unknown caves. Furthermore these discoveries were made by prehistorians. I refer to the opening up in 1912 and 1914 of the neighbouring caverns of the Tuc d'Audoubert and of the Trois Frères at Montesquieu Avantès (Ariège), the cave at Montespan (Haute Garonne) in 1924 by my pupil Norbert Casteret, and in the same year the cave at Cabrerets (Lot) by the Abbé Lemozi.

As we knew that we were the first human beings to enter these galleries since prehistoric times, we realized the necessity of having regard to every minute detail, and the special importance of first observations. We proceeded with that caution, attention and pious regard that can only come with long practice in prehistoric research. By this means we were able to preserve untouched many unique features such as the impress of human hands and feet, besides a variety of mysterious objects; little heaps of stalactites, rolls and twists of clay, etc., many small details of which we do not know the exact meaning; and if they are in no way artistic they have some magic signification whose meaning the study of ethnography with its useful analogies may help us to guess, and in the course of comparison we may draw some useful inferences.

THE MAGIC ORIGIN OF PREHISTORIC ART

cave, a very considerable part of the passage leading to it has been broken down, and that originally these magnificent frescoes were very much more remote from the entrance than they are today.

In the case of Cap Blanc there is a certain parallel with the magnificent sculptures recently discovered by Dr Henri Martin. Figures have been carved in relief on blocks of stone which had obviously been used by some previous artist for a similar purpose, and the later carving was made regardless of the already existing traces. The idea seems to be to represent animals at some special given moment, and in circumstances of definite significance, rather than to produce a merely decorative effect. It was magic ritual, rather than art, which inspired this type of work. With every fresh discovery two facts stand out more and more clearly. The drawings are generally found as far removed as possible from the entrance of the cave, and in nooks and corners very remote and difficult of access. In the cave of Niaux the first drawings are found at a distance of 867 yards (800 metres) from the entrance. The famous clay bison are to be found at the furthest limit of the Tuc d'Audoubert, 758 yards (700 metres) from the entrance, and at Montespan the actual distance is even greater. The various engravings in the cave of the Trois-Frères are arranged at two different levels about 867 and 1085 yards (800 to 1000 metres) from the entrance, and in passages where one must sometimes go *à plat ventre*. It is at this point that I would challenge those who uphold the theory that primitive art was purely decorative, art for art's sake in fact. I doubt if they would still hold their ground after crawling flat on their stomachs to admire some engraving of bison or rhinoceros on the wall or ceiling. The magnificent series of reindeer, extending over nearly thirteen feet, is at the end of an extremely narrow passage, whose walls are by no means vertical. One cannot stand upright, but must perform veritable contortions in order to be able to admire these splendid creatures, graven with a technique which suggests the reindeer of Thayngen (Switzerland). They are drawn on every side, but the variety of positions one must assume in order to see them emphasizes the fact that the original artist must have been through just the same contortions while he was designing them. In fact each animal must have been drawn parallel to the line of sight.

All who have studied prehistoric art, not only in books, but in the caves themselves, must agree with me that the artist's first consideration must have been the choice of a site as mysterious, dark, and difficult of access as possible.

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It is also noteworthy that the paintings or drawings are not found in those parts of the caves which were used for habitation, but always at some distance, in remote galleries or at a different level from any inhabited part. This is very true in the case of the Tuc d'Audoubert and the Trois-Frères, etc. Sometimes, as at Niaux and at Montespan, no trace of hearth or habitation has been found at all. It was in the shadowy depths of sombre caverns, perhaps where invocations were made, that the first ideas of pictorial art appear to have arisen.

Sometimes in the caves there is some accidental contour of the rock which suggests the form of an animal. This clearly attracted the attention of the original cave artist, and we frequently find that he has made use of this suggestive resemblance in the rock and completed the form of the animal by his art. At Niaux there is a certain hollow in the rock whose shape lends itself particularly well to the representation of a stag's face viewed from the front ; by adding a pair of antlers in black outline man has completed the fanciful picture which nature suggested. The natural bosses in the roof of the cave at Altamira have been utilized to much advantage in outlining the bison form. There are abundant examples of such adaptation.

Whence arose this desire to take advantage of any contour in the rock which might assist in tracing the animal form, or indeed the desire to draw at all ? The answer is to be found in the notion, current among all primitive peoples, that an image of any creature is in some fashion a part of that very creature itself. It is in fact its double, and the man who possesses the image actually has some power over the creature. Hence any harm done to the image will be communicated to the living subject of that image. The consequence of this reasoning is the key to all magic and enchantment. One could cast a spell and so hurt by hurting the image. It is needless to dwell on the innumerable historical examples of this well known practice.

Now we may justifiably assume that these ideas were current during the Stone Age. The majority of paintings and drawings in the caves are accompanied by signs which bear out this idea. I repeat, the majority, but not all, for while there are exceptions which explain themselves there are others for which no obvious reason is forthcoming. Moreover, there are certain of the magic signs whose meaning is unknown to us. But for the most part they are perfectly comprehensible.

At Niaux, at Portel, at the Tuc d'Audoubert, at the Trois-Frères, at Montespan, at Cabrerets, only to mention those caves in the valley

THE MAGIC ORIGIN OF PREHISTORIC ART

of the Garonne, we observe that in most of the paintings and drawings of animals arrows are clearly indicated on the flank. This was unquestionably done to ensure the success of the hunter in the forthcoming chase. Frobenius, in one of his later books, relates that when he was amongst the pygmies of Central Africa his chief huntsman invariably refused to set out on a hunt without the performance of due ceremonies beforehand. 'It is useless, we shall kill nothing! The rites have not been performed'. As he would not reveal to his master wherein these rites consisted, Frobenius had to content himself with spying them out as best he could. At dawn the pygmy left the camp and climbed to the top of a hill where he drew on the ground a picture of an antelope. As the first ray of sunlight appeared he aimed at the picture and pierced the neck with an arrow. When the real hunt took place the antelope was duly killed by a bullet in the neck precisely as the magic charm indicated. The pygmy was careful to carry away some of the blood and hair from the beast. After they had returned to the camp, the pygmy went back to the image he had drawn, pulled out his arrow and poured some drops of blood from the real animal into the hole the arrow had made, and surrounded it with some of the hair in order to be reconciled with the antelope's spirit.

This contemporary instance is thoroughly typical of the primitive state of mind and throws a valuable light for us on the mentality of the cave-man.

Sometimes we find, in addition to arrows, a wound, usually represented by a red stain or else by a groove. It may even be that the presence of suitable grooves led the artist to put his drawing there. At Niaux a little bison has been designed on the clay around three small depressions which have been hollowed out by the continual dripping of water, still in process, from the vault above. The mark of an arrow has been added to each of these nature-formed scars.

At the Tuc d'Audoubert some natural cracks in the rock occur on the finely-graven forepart of a bison. Darts have been added to give the cracks the signification of wounds.

In the Cantabrian Pyrenees are many claviform designs, representing some kind of a weapon whose precise shape and use is at present unknown to us. At the very end of the upper gallery in the Trois-Frères, on the face of a wall which has been most carefully prepared (one can still clearly see the marks of scraping), one of these weapons, measuring 17 inches long, is painted in bright red. A boss occurs in the upper third of the figure, but this is quite small, whereas in the

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majority of pictures one end is very much enlarged so that the design assumes a form like the letter P.

These signs occur on very many of the animal drawings, notably on one of the horses in the Trois-Frères ; and the magnificent reindeer head in the Tuc d'Audoubert seems to be surrounded with them. Was it some kind of projectile in the nature of an Australian boomerang ? We are equally doubtful as to the meaning of certain lines, sinuous or branching such as are found at Marsoulas, and certain tectiform pictures which perhaps represent traps. Our ignorance of their signification is but an additional proof that they belong to occultism.

I have come to the conclusion that the greater number of the designs known as 'tectiform' do not represent huts, as has generally been believed. That interpretation may be true in certain cases, as for example that at La Mouthe, which according to Breuil is very late Magdalenian, and which indeed admits of no other explanation. But the variety of designs included under the name 'tectiform' is so wide that they cannot obviously all be explained in the same way.

I am strongly of the opinion that more than one of these tectiforms represent traps. In the Museum at Helsingfors I have seen models of traps used by the Lapps for snaring wild animals. One of them consists of a pit, in the centre of which a stake is driven into the earth, and bait is attached to it. The hole is then covered over lightly with branches and turf in a slight dome. When a wolf or fox comes to seek the bait and steps on the fragile covering, it gives way under him, and the animal is thrown into the pit. Now there are many pictures of mammoth and bison, enclosed in tectiform designs exactly resembling this form of trap, and I was glad to notice that Dr Lips in his remarkable work on 'Trapping amongst Primitive People' had arrived at the same conclusion as myself.

In one of the mammoth drawings at Font de Gaume, one can even see that the central stake had been broken by the weight of the animal falling in. Beyond doubt this drawing was part of an enchantment designed to facilitate the capture of the mammoth, an enchantment all the more necessary considering the immense size and strength of the quarry, and the feeble weapons with which his hunters were equipped, so that it was only by artifice that man could hope to succeed.

In many places we find round spots in black, or red, arranged along the walls in lines, circles, or scattered irregularly, which I believe to represent numbers of stones to be used as projectiles. This idea is borne out in the drawing of a troop of horses at Cabrerets (Lot) and

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perhaps by a bear in the cave of the Trois-Frères. I am now however inclined to accept Abbé Breuil's explanation that the bear in this picture is disguised, as we have seen in the case of other bears. But the disguise itself can only have been invented to complete some magic spell. Small discs are engraved not only on the body but all around this creature whose prominent forehead indicates clearly *Ursus spelaeus*. From his mouth, which is wide open, and from his nostrils, appear long marks as if to show the blood pouring forth, which would certainly be the case if he were killed by stoning. In a gallery discovered in September 1926 by M. Felix Trombe in the cave at Montespan (Haute Garonne) there are numerous small holes made in the clay by the insertion of a finger. I believe that a similar explanation applies to them. They represent stones or darts by means of which a herd of wild horses is to be driven into a stockade. This unusual picture, which has hardly yet been fully made known, merits a special description.

The cave of Montespan is peculiarly difficult to explore. It forms the bed of an underground river, and for more than 1300 yards the water is knee deep, and one cannot stand upright on account of stalactites. Its discovery was due to the daring enthusiasm of one of my pupils, M. Norbert Casteret, who courageously swam under the vault till he reached a gallery where he found some little clay figures which I will describe later. In another gallery which has a particularly low roof, there are many imprints of human feet, and the left wall is covered with drawings. Most conspicuous the particularly fine picture of a diminutive horse, falling over backwards. The neck is stretched out and nostrils are quivering, as would be the case with an animal struggling to regain its balance. Beyond this admirable drawing there are numerous little holes in the clay made with a finger, and also some broad vertical stripes which partly conceal some rough outlines of horses. That the whole fresco is of undoubted prehistoric antiquity is proved beyond dispute by a coating of stalagmitic formation which now encrusts it.

At the end of the passage some marks also made with the finger all converge towards a hollow formed by the removal of a mass of clay. The whole scene suggests to me a corral surrounded with palisades into which wild horses are being driven by stones and darts. It would appear to be a regular hunting scene, all the more remarkable because up to the present we do not know of any other picture in prehistoric art showing a definite grouping of animals. However close the figures

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may be on the cave walls, each is a distinct and separate effort, unconnected with those which may happen to surround it.

Dr Herbert Kuhn drew my attention to the fact that the long series of vertical bands which are to be found at Niaux close to the lake and which have been regarded as some elongated tectiform, may very well be a palisade, behind which the form of some animal can dimly be made out. In fact this picture at Niaux may fairly be regarded as a hunting scene such as we have at Montespan.

The clay models of a small bear and certain feline creatures in the cave of Montespan are too well known to need description here. I would only draw attention to the fact that they are literally riddled with wounds, particularly one of the felines, which seems to confirm beyond doubt my opinion concerning the purpose for which these figures were made. The day before some preconcerted hunt, the sorcerer would come and pierce these little images with spears, and pronounce some charm over them. It is quite probable that fresh figures had to be made for every occasion, though no doubt there were exceptions. For example, the small headless bear in the cave of Montespan appears to have served on many occasions. It is roughly done, and its back and hind quarters are rounded and polished as if by frequent rubbing with something supple yet resistant, such as a bear's pelt. Perhaps it was part of the ceremony to wrap the little clay image in the skin of some animal and then fix in a wooden peg for the head. The Abbé Breuil and myself consider that the skull which was found between the paws of the small clay bear, and a triangular hole in the cross section of the neck, lend some colour to this hypothesis.

That the hunters were wont to stab the figure is proved by the numerous marks upon it, though these are now partially covered by stalagmite. It would appear to have been necessary to have a personification of the animal for every separate hunt. Hence the exceedingly large number of pictures which cover the cave walls. The tribal magician might however make use of the same figure several times over by dint of modifying an existing drawing according to the purpose required. By far the most noteworthy example of this is to be found in the cave of the Trois-Frères. It is a lion engraved on stalactite in a small circular recess. The contour of the rock lends itself to the design, the paws being simply stalactites on which claws have been engraved. There was a touching sense of brotherhood when we found a very fine Magdalenian burin (graving tool) left in a cranny of the rock, wherewith doubtless the artist had drawn his picture. The head of the lion had

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been partly effaced and drawn three times over, in different positions. In like manner the tail was drawn at one time straight, and at another time curling. Probably in order to save himself trouble, the artist made use of the same figure for different occasions, and merely altered the head or the tail a little to invest the lion, which they hoped to kill, with a new personality for each succeeding hunt. It has indeed always been a recognized practice in witchcraft that an image wholly or partly new should be used on each occasion. This particular figure apparently served its purpose a great number of times to judge by the quantity of arrows engraved or painted on its body. The majority of such figures seldom bear more than two or three weapons, and often a single one suffices. It would appear also that it was not always considered necessary to make a drawing of the entire animal, but merely some essential feature such as the head, and then to elaborate some distinguishing characters such as the horns. There are numerous examples of this in the Tuc d'Audoubert : side by side with the complete pictures of animals we find a bison of which merely the forepart is given, and the head of a reindeer very carefully drawn, but the bodies are in each case lacking. In the same way at Marsoulas the artist appears sometimes to have contented himself with merely giving a careful and exact representation of the bison's horns.

To the same magic purpose I should attribute the silhouettes cut out in bone, also the engravings and figures which we find on various weapons and tools, even when merely the head or the limbs are represented. For these latter the hoof or the claw, as the case may be, shows very clearly what species of animal is intended : horse, cattle, or carnivore. The foot is enough to personify the animal for purposes of enchantment. The Abbé Lemozi, who first discovered the beautiful cave at Cabrerets, drew my attention there to the numerous figures of animals lacking both eyes and ears. This was noticeable in the mammoths, but still more so in the cattle.

We fully concurred with the Abbé's opinion that this suppression of the organs of sight and hearing had a special magic significance. How can the hunted beast without the aid of eyes and ears detect the presence of the hunter ? The idea of depriving the animals of these natural means of defence in pictorial representation was to place them at the mercy of man by means of witchcraft.

The same idea obtains in designing an animal without a head. Sometimes we find a picture or a statuette consisting of a body only. There is the particular case of Enlène (Ariège), where the statuette of a

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stag's body has been used as the handle of a dart thrower. That the head has been deliberately cut off is obvious from the very clear marks of sawing on the neck.

But there may also have been special cases like the small headless bear at Montespan to which I have already made reference. On the other hand I doubt if the same explanation would apply to those curious figures of headless women roughly drawn on the roof of one of the galleries at Cabrerets.

Howsoever it may be, the idea that one could protect oneself against an animal by drawing a picture of it without a head, or without limbs, or by drawing arrows on it, recurs frequently in the magic lore of ancient Egypt. In a classic work recently published on this subject, Professor Laxa of the University of Prague gives illustrations of hieroglyphic signs where all the animals are rendered harmless. Serpents, wasps, and other creatures either have no heads or else are dismembered. Some of the snakes and crocodiles are shown with arrows on their bodies. Without going so far as to suggest the possibility of a tradition being handed down, it is none the less interesting to note these resemblances produced spontaneously in two civilizations so very remote from each other.

It is now clear that the various anomalies we encounter in pre-historic art may be easily explained by the theory of Magic, whereas the theory of art for art's sake does not solve any of the problems which arise.

It is only reasonable to suppose that in this branch of magic culture primitive man's artistic powers would undergo gradual development and improvement, and although I maintain that he embarked on his artistic career with a purely utilitarian purpose I should be far from denying that he took a very real pleasure in his work, as his technique and powers of perception advanced. Moreover he was quick to take advantage of any little facilities which Nature offered towards the achievement of his artistic efforts. How far along the path of civilization he has travelled since he first traced with earnest care such pictures as the diminutive black horse at Niaux, or the magnificent reindeer, or the bison head, so skilfully emphasized in black outline on the rock face in the cave of the Trois-Frères! No doubt a great incentive towards the attainment of a higher technique lay in the necessity of making as accurate a picture of each animal as possible in the hope of ensuring the success of the enchantment. If there existed some ritual by which it sufficed to give a name to some indeterminate object or

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drawing and then to say ' This stands for such and such an animal ', it can only have been the custom of some very inferior civilization.

Generally speaking, in all magic lores the more perfect the resemblance, the greater the power of the sorcerer over his subject. That this belief was already established in Magdalenian times is shown by the fact that characters are carried to an extreme point, and the accuracy of detail in each species is such that we can even determine the different breeds among the horses, and distinguish the cave bear from the brown bear. The natural positions of the different animals are treated with a like precision which denotes the keenest powers of observation. And there is a yet more remarkable gift made evident in studying the work of these primitive artists. During the long hours while they were stalking their game these ancient hunters must have acquired an almost photographic impression of the animals they hunted, to be able to reproduce them with such minute accuracy in the dimly lit caverns. They had no such advantage as our artists of today who can work from the living model and in full daylight, and yet these early pictures are no wise lacking in life and movement.

It is fortunately a part of human nature that work well done brings its own reward of satisfaction, and the allurements of successful achievement wax strong in the artistic soul. On this one point I can agree with those who uphold the theory of art for art's sake in Magdalenian times. The zeal of the artists was commensurate with their improving workmanship. But the mind was yet too primitive to subsist on the encouragement of a sentiment only. It still hung upon the strong impulse of magic power.

Art was born of Magic. The truth of this statement is confirmed by the fact that when man learned to support himself by agriculture rather than by hunting this primitive art ceased to exist. There was no longer need to make figures and images in order that enchantment might render the chase fruitful. That is to say that the relative certainty of daily food eliminated the necessity for drawing pictures of animals. He who has learnt to till the fields has a better prospect of the morrow's supply than he who lives by hunting only. He knows more of the laws of Nature and the rewards of personal toil. His life is less hazardous than the hunter's and consequently he has less need to seek the aid of magic. But there is one point where his necessity is identical with that of the hunter. Fecundity is just as needful among his domestic flocks and herds as among the wild beasts of the chase whereby the hunter lives.

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I have hitherto spoken only of the magic to which primitive men resorted as a means of ensuring their success in hunting. They hoped with the aid of charms and incantations to kill as many beasts as possible. But they also used their art to promote another kind of magic which they hoped would ensure an ample supply of the game whereby they lived. Propagation rather than destruction was the end in view. And the one idea is the complement of the other. The hunter cannot be successful unless the game is there to be killed. The need for an abundant supply was paramount, and the ancient hunters sought to augment it through the aid of magic. There are primitive tribes in Australia who observe similar practices today. They live chiefly by hunting the emu, a large bird somewhat resembling the ostrich. Every year they hold a special ceremony in order that the supply of emus shall not fail. On the ground they make a model of the bird, surround it with pebbles to represent eggs, over which they celebrate all manner of magic rites.

The same fundamental idea must have actuated that Magdalenian artist who fashioned with such realistic touch the famous group known as the clay bison of the Tuc d'Audoubert. There we have both the male and the female. The position of the latter and the physiological details leave no doubt. She is awaiting the bull. It is a mute, appealing prayer for the increase of the bison herds. Moreover there is no trace of weapon or wound such as we see on the statuettes at Montespan and similar works of art. It is without blemish, the highest expression of the artist's endeavour and hope.

As a work of art it is unique but the idea which prompted it finds many forms of expression. Monsieur Peyrony has recently discovered in the Dordogne a bas-relief in stone representing a bull, and beside him a cow who is apparently in calf. One might quote many other examples where not only the fertility of cattle is signified, but also of reindeer. In the cave of the Trois-Frères we see a picture of the male reindeer pursuing the female, and the famous poignard of Bruniquel, now in the British Museum, was carved to represent the same idea. During Aurignacian times this same purpose of fecundity found expression in numerous figurines of women, such as those found at Willendorf, Laussel, Vistonitz, Grimaldi, Brassempouy, Lespugne etc. These are quite unlike any work of the Magdalenian period, where the human figure is extremely rare and of very inferior technique to that displayed in the representations of animals. It was the hunted, and not the hunter, that had to be embodied for purposes of magic, and as

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for the question of man's reproduction, that was concerned with the law of demand rather than that of supply. Possibly also, human portraiture was forbidden. However that may have been, the few attempts we find show the human features so distorted and bizarre that they must have been intentional caricatures. Some are even obscene, such as the satyr of Portel (Ariège). So far as present discovery goes there is only one known exception, and that is the famous 'sorcerer' in the cave of the Trois-Frères.

Here we see an amazing masked human figure with a long beard, the eyes of an owl, the antlers of a stag, the ears of a wolf, the claws of a lion and the tail of a horse. It is engraved and outlined in black paint, about ten feet from the ground, in a nook most difficult of access in a small round chamber known as the Sanctuary. It seems to dominate and preside over all the hundreds of other creatures, of thirteen different species, engraved and drawn on the walls below. It is the supreme mystery of the cave. Can it be some weird deity of those primitive people? Perhaps rather it is the Arch-Sorcerer who has taken unto himself the divers attributes of the beasts he enchants, a character personified even in our own day by the Shaman of the primitive tribes of Siberia.

The forgoing remarks apply easily enough to mural art, but the question of statuettes and individual artistic objects is far more complicated. Beyond doubt Magic was the preponderating influence throughout, but it must be allowed that the problem is an exceedingly complex one, and to gain an impartial view one must examine the arguments opposed to the theories I have put forward.

Let me say at once that I think a great deal may be attributed to that nascent artistic sense which manifests itself in many of the cave drawings. The fact that the drawings were artistic was incidental to their purpose. There was no prime purpose of decoration. None the less most of the small objects which we find carved or manufactured by the hand of man for his own use bear distinct traces of decoration.

Ever since the Aurignacian age, man seems to have noted the fact that the mere repetition of regular lines or dots gives a pleasing effect to the eye, and we find unmistakeable geometric patterns at Predmost (Aurignacian), at Marsoulas (Magdalenian), and in other places. The same type of idea prevails in the deep cut spirals on the walls at Lespugne, Lourdes etc. Even in admitting with Breuil that all these patterns may be only an extreme variation of some attempt at animal form, it is hardly possible to believe that designs such as these were

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connected with magic, which always demands a certain amount of realism to fulfil its purpose.

But directly we consider the animal figures and forms on various Magdalenian objects made for some definite use we find the realism of magic intent developed to the full.

How else can the figures so numerous on bone and on stone be explained, except by Magic?

I cannot admit that it was merely for pleasure that prehistoric men engraved, for example, all those stones found at Limeuil. Nor do I agree with the opinion that this station was actually a kind of studio and workshop for the production of artistic fancies worked on stone, just as one finds sketches on canvas or paper in the studio of an artist of today. I rather believe that there were certain places sacred to some sorcerer where the figures of animals were designed each for a specific purpose. After this purpose had been fulfilled, the piece was abandoned, either because it became useless or because it became a votive offering.

There are superstitious people who still behave thus. The Arabian sorcerers will write a charm on a scrap of paper which is then swallowed or carried about in a little leather bag as a talisman.

With regard to the sculptured animals on the 'batons de commandement', dart throwers, etc.: many indications point to the fact that they had some magic significance, especially the intentional mutilations that have been noted on so many of them. As has already been remarked the head of the stag found at Enlène, which has been used as the handle of a dart-thrower, has been purposely cut off. This mutilation could have no practical purpose, except as a punishment inflicted on an object which failed to perform the service for which it was intended.

We find these superstitions still existing among many primitive people of today who make figures of animals on their weapons. This is for the accomplishment of a twofold purpose. Firstly, they hope to be endowed with the special qualities of the animal represented—such as strength, cunning, or swiftness. Secondly, they hope that the picture would facilitate the capture of the animals represented, by reason that the hunter already can hold the image in his hand. All this relates of course to the magic of destruction. Examples of the magic of reproduction, such as little representations of the sexual organs, or the male reindeer pursuing the doe on the poignard of Bruniquel, are extremely rare.

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In the cave of the Trois-Frères there has just been discovered (September 1928) an engraving on bone which cannot be placed in either the above categories. All the pictures found hitherto have represented animals which were either useful for food or else dangerous to man. One can understand that the hunters wished to kill the bison, the horse or the reindeer in order to eat the flesh, and they killed the lion and the bear because they feared them. But what can there be to say about an insignificant, harmless, little grasshopper? Doubtless it was uncommon enough in that cold Magdalenian period. Since it could be neither useful nor harmful to man, to what purpose can it have been engraved on a fragment of a large bison bone, intentionally broken off?

Certainly the question as to the significance of art in small weapons and tools is a very complex one. In this case we have not the solid evidence of magic purpose such as we have in the case of mural art which was created, dominated, sustained and finally brought to perfection through the pursuit of magic. However, considering the close relationship which must have existed between these two branches of art, I do not hesitate to maintain the preponderating influence of Magic, albeit in varying degrees, throughout the whole realm of prehistoric art.

‘Old England’, Brentford

by R. E. M. WHEELER

WHETHER Brentford was at one time Brigantford, or the ford of the Brigantes, is a question which the modern etymologist would not hesitate to scorn; nor is the identity of the site with the ford whereat conquering Caesar crossed the river on a celebrated occasion as substantial as the granite monument which now commemorates the event at the head of the ferry-stairs. Nor yet again is the name ‘Old England’, which the Ordnance Survey ascribes to the water-meadow on the Middlesex shore some 400 yards above the present junction of Thames and Brent, of authenticated antiquity. Nevertheless here and hereabouts, as our museums can show, was a great losing of swords and spears in prehistoric times, and here too, as we now know, were riverside dwellers at the end of the Bronze Age and, again, in Roman and later times. The name ‘Old England’ may stand.

In 1922 Mr O. G. S. Crawford described in the *Antiquaries Journal* a ‘prehistoric invasion of England’. His invasion was that of a folk who used bronze leaf-shaped swords of a late or ‘Hallstatt’ type, winged axes of the kind native to central Europe, small knives with curved, single-edged blades of similar provenance and small crescent-shaped razors such as occur in the Swiss lake-dwellings. Groups of this sort are extremely rare in Britain, but at the few spots where they have been found they are sufficiently striking to have suggested to Mr Crawford ‘an invasion from France or Switzerland at about the time when iron was coming into use’ and at a time when central Europe must have been in a very disturbed state. ‘At precisely this moment the lake-dwellings of Switzerland seem to have come to an end. So far as one can gather . . . there appear to have been no lake-dwellers in Switzerland during the Late Hallstatt Iron Age [*i.e.* 700–500 B.C.]. Can they have been driven out by other invaders from the east? and was it the lake-dwellers themselves who invaded these islands?’

If so, these fugitive Swiss may be thought to have settled on the

PLATE I

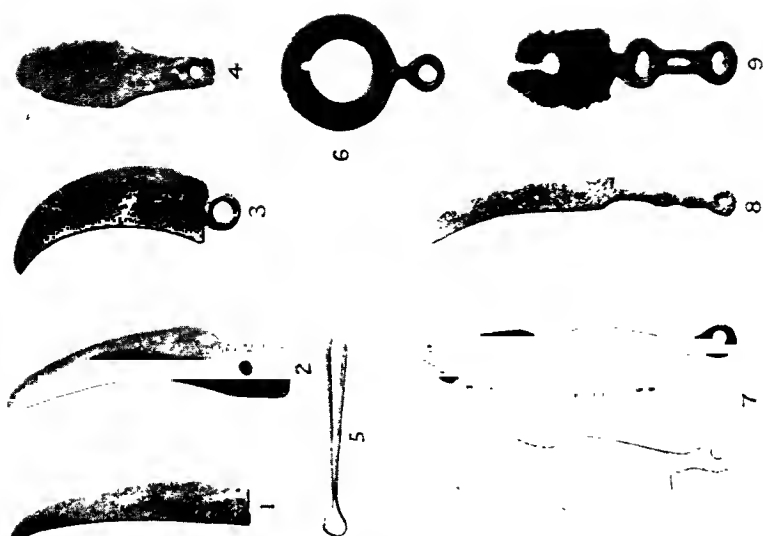


FIG. 2. BRONZE KNIVES, RAZORS AND TWEEZERS FROM THE
THAMES AT OLD FING AND
MAIDEN WEYMOUTH



FIG. 1. 1. BRONZE WINGED AND 2. BRONZE HORN-CHILLER PITH OF HORSES, 3. 4. 5. BRONZE
CHISELS, 6. 7. 8. BRONZE SPIRALS, 9. 10. BRONZE DISCS
ALL FROM THE THAMES AT OLD FING AND
MAIDEN WEYMOUTH

‘ OLD ENGLAND ’, BRENTFORD

marshy shores of Thames in and around ‘ Old England ’. For dredgers, clearing the channel up and down this reach, have time and again dragged up these exotic bronze implements, particularly at the point where the Isleworth and Old Brentford parish boundary strikes the Thames. The Port of London men and the local watermen, who have

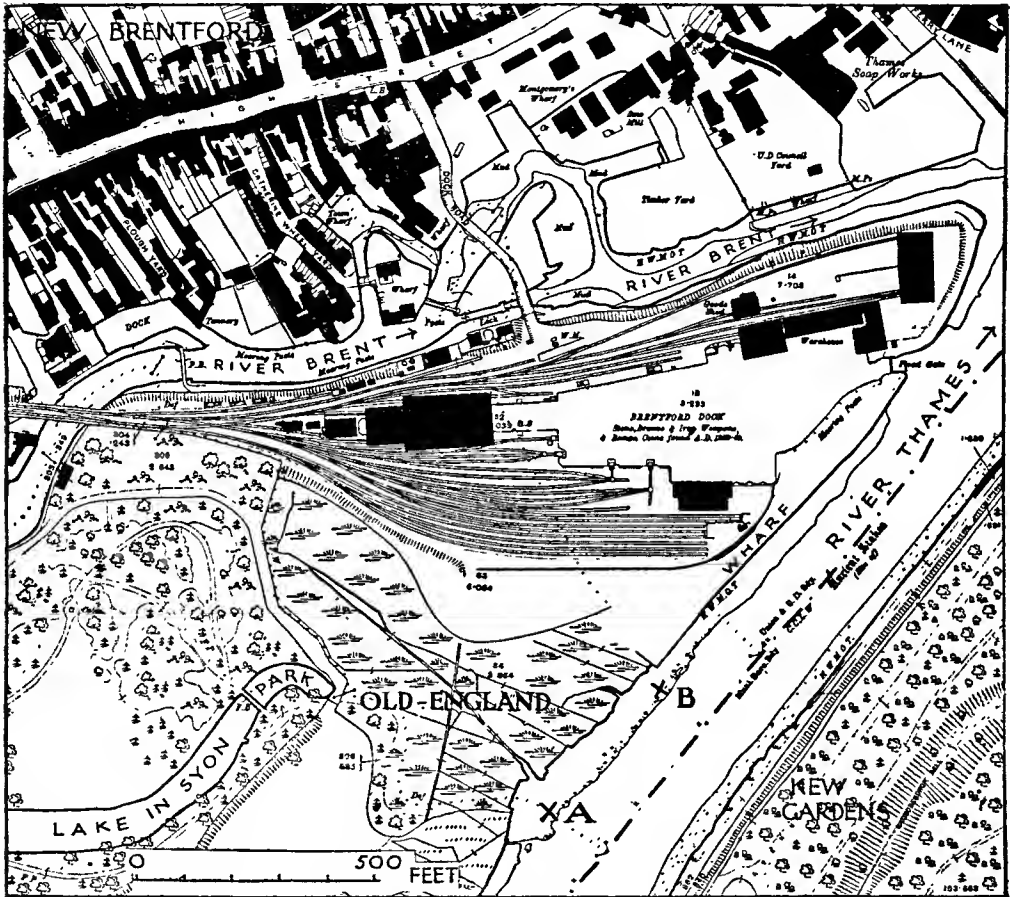


FIG. 1. SITE-MAP, SHOWING SITES A AND B
Adapted from the Ordnance 25-inch map Middlesex XX, 4, by permission of H.M. Stationery Office

actually seen the finding of these things, say that they occur normally at a distance of 10 or 20 feet out towards mid-stream from the present low-water mark. Other implements of a similar kind have been found during the building of the dock upon the promontory within the fork of the two rivers.

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For the diligent collecting of these relics, gratitude is due to two men. The first of these was the late Mr Thomas Layton of Brentford whose collection is now in the Brentford Public Library. (Here, in the interests of science, a word of warning may be uttered ; a great part of his invaluable collection comes from the neighbourhood of the Brentford ferry, but his method of marking his specimens was insecure and only the older labels are really reliable). The other picker-up of unconsidered trifles is Mr G. F. Lawrence, whose collections from this site have found their way into the British Museum and the London Museum. Some of these are here illustrated (plates I and II).

Recently, Mr Lawrence's beneficent activities happened to attract the interest of the newspaper Press, with the ultimate result that in July 1928 the *Daily Express*, through Mr H. V. Morton, generously placed funds at the disposal of the London Museum for the purpose of carrying out a trial-excavation on the 'Old England' site. To Mr Morton a special word of thanks is also due for active cooperation throughout the proceedings, and the Port of London Authority incurred our gratitude for permission willingly granted.

We began our work upon the basis of Mr Crawford's entertaining theory. Here we had a site upon which, it was supposed, we might find the tracks of one of the greatest industrial revolutions in the story of central European civilization—the revolution incidental to the supersession of bronze by iron. Here, *ex hypothesi*, was the last lake-dwelling built by the last of the Bronze Age lake-dwellers whose conservative adherence to the old bronze tradition had compelled them to flee the new Men of Iron ! And this, with the help of twenty long-shoremen and half-a-dozen University of London students, is what we found.

The 'Old England' meadow is seamed by small water-channels which are, in some cases, dry under normal conditions, though one of them regularly carries the overflow from the lake in the grounds of Syon House. It seems likely that, at its junction with the Thames, the Brent at one time formed a delta over this low-lying ground and that these vanishing water-channels are a remnant of this feature. Today, the meadow ends in a vertical ledge of alluvium, 4 feet or more in height, which marks the normal extent of the high tide. Below this ledge, for a distance of 40 feet or more, the foreshore slopes gently downwards, and is in most places covered with a deposit of alluvial slime. It then slopes more sharply towards mid-stream and, at a varying distance below the low-tide level, drops at a still steeper angle where the river-bed

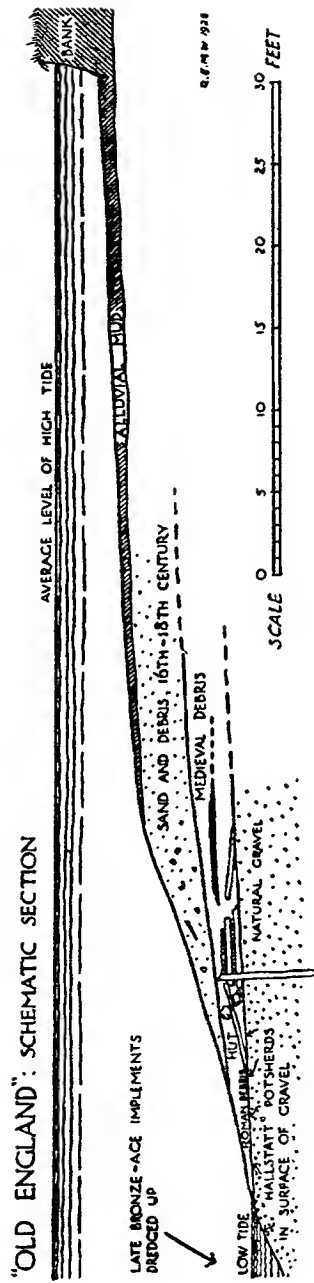


FIG. 2. SECTION THROUGH THE FORESHORE AT 'OLD ENGLAND'

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has been dredged for navigation (see section, fig. 2). The outer and steeper slopes of this foreshore are, for the most part, encased in clean gravel.

Our method of excavation was to drive a deep trench along the brow of the foreshore immediately below the lower limit of the alluvial slime and to throw out branch trenches at right-angles from this towards the low-tide line. In the course of these operations we cut through a series of deposits, which were as follows.

On the surface of the gravel were the usual modern relics, but there was no well-marked stratum which could definitely be regarded as 18th–20th century. It is clear that the scour along the lower part of the foreshore has been too vigorous to allow any regular deposit during that period. Beneath the surface, however, was found throughout the line of the longitudinal trench a well-marked deposit of sandy gravel containing relics ranging in date from about 1600 to 1700 A.D. This material had clearly been placed in position deliberately and was not deposited by river action—a point of some interest which will be referred to again in another context.

Below this 17th-century embankment were found here and there extensive deposits of burnt material, animal-bones and shell-fish (oysters and mussels) associated with medieval pottery which is described in the schedule at the end of this paper. The largest of these deposits was towards the north-eastern end of the site at the point marked B on the map (fig. 1).

Below this again, at the spot marked A on the map, were found remains of earlier occupation. As we approached this level, we came across loose oak-piles and broken twigs in the superincumbent sand; but it was not until one of the workmen, groping below the receding tide, brought up a complete Roman pot (plate v), that we received our first hint as to the period of the ruined structure. Clearing downwards as the tide receded, we came at last upon piles in position, and finally, in the brief space of time during which the tide was at its lowest ebb, were able to uncover a part of the floor of the hut from which the Roman pot had already been recovered. (Plates III–IV.)

Preliminary notes were made as to the nature of the structure as the tide once more covered the site. The following particulars include those obtained both at this time and at the subsequent ebb.

Incomplete though the particulars be, they represent the herculean labour of workmen and students, up to their knees in water and working feverishly with buckets whilst pick, trowel and fingers uncovered the

‘ OLD ENGLAND ’, BRENTFORD

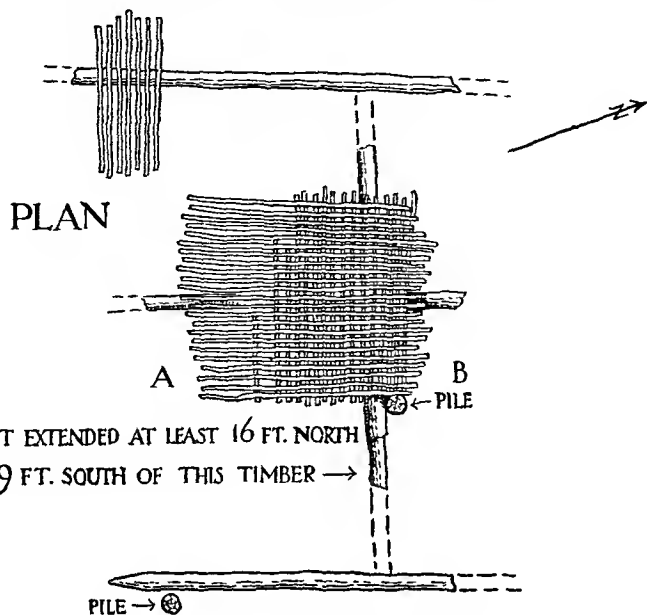
fragile fabric. It must be admitted at once that neither the outline nor the full extent of the pile-dwelling was ascertained but, without some sort of caisson in which to work, it was beyond human possibility to achieve more than we did. In the hope of recovering what we could of the half-exposed and therefore endangered structure, our men worked through the dark hours and into the dawn at the task of removing the over-lying bank of gravel—from 5 to 7 feet in height—under which the partly exposed pile-dwelling extended.

The principal fragments of the hut which were thus uncovered are shown in plate III. They included a complete section of the flooring, which was as follows (fig. 3). A vertical timber, which was doubtless carried up originally as one of the wall-posts of the hut, was driven more than 3 feet into the gravel—how much more it was not possible for us to ascertain. On the surface of the gravel a horizontal timber was laid at right angles to the pile and doubtless, at one time, lashed to it. A layer of green clay was then laid on the surface of the gravel to the height of this transverse timber, *i.e.* to a height of about 6 or 7 inches. Upon this layer of clay was then placed a longitudinal layer of wattles which extended across the prostrate timber. Upon this wattle bonding-course (as it may be called) a second horizontal timber was laid, directly above the first, and flush with its top a further layer of green clay was added. On this second clay-bedding was placed a double layer of wattles, the upper at right angles with the lower. This double layer of wattles seems to have formed the final floor, which was thus nearly 2 feet above the surface of the gravel. The whole structure was clearly of one period and represented a systematic attempt to form a damp-proof floor on ground which was either marshy or liable to flood. The timbers were unsquared but several of them were sharpened at the end, although, in one case at least, used not as a pile but as a horizontal bond. A few of the loose and fragmentary timbers on the site, however, had been roughly squared, and one of them (marked x on plate II, 2) was shaped in such a way as to suggest that it had formed part of a dug-out canoe.

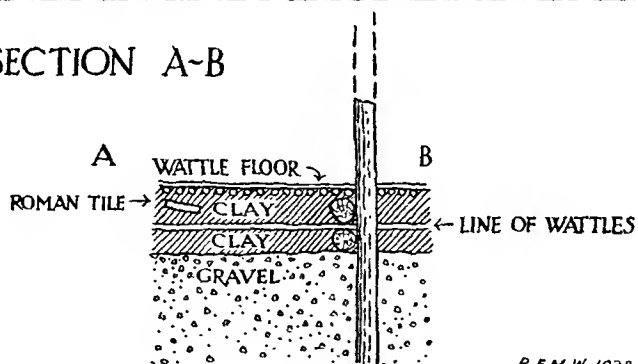
The general period to which the hut may be ascribed was sufficiently indicated by the presence of a piece of Roman roofing tile in the upper clay layer and beneath the wattle flooring. Around the hut were found a few sherds of Roman pottery and seven other pieces of Roman roofing-tile and brick together with bones of horse, ox, red-deer and pig (see schedule at the end of the paper).

One or two other fragments of evidence may be added. In the

"OLD ENGLAND", BRENTFORD, MDSX. ROMANO-BRITISH HUT



SECTION A-B



REM W 1928

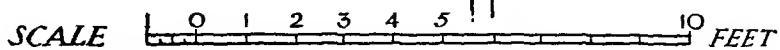


FIG. 3. REMAINS OF THE HUT ON 'SITE A'

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first place it was tolerably clear from the arrangement of the timbers which were still *in situ* that the hut had been of rectangular and not of circular plan. In the second place it had been of considerable size since, though the actual structure was fragmentary, the clay-bedding of the floor was easily followed, in so far as time allowed, and was found to extend to a total distance of not less than 35 feet from south-west to north-east.

The discovery of this Romano-British pile-dwelling—the first of its period recorded in these islands—did not mark the end of our work. In the surface of the gravel around the hut, and still more in the gravel which extended *below* the present low-tide level, we were able to recover upwards of twenty fragments of coarse hand-made pottery, generally dull brown in colour and flecked with fragments of white calcite. Very few of these pieces bore any indication of form and those which did were extremely fragmentary. (See schedule and fig. 4). It was sufficiently clear, however, that here at last we were approaching our original goal. The pottery, like so many of our later prehistoric wares, cannot yet be dated with any precision, but it may with confidence be assigned to that half-millennium which in central Europe is known as the ‘ Hallstatt ’ period (about 1000-500 B.C.). The finger-nail decoration on one of the sherds, the applied moulding on another of them, and the broad-shouldered bowl which others seem to represent, are reminiscent of the types that occur in this country on a few sites such as Scarborough¹ which seem to have been occupied at the extreme end of the Bronze Age and the beginning of the Age of Iron. This phase in Britain was probably one of long duration and it was certainly one which was distinguished rather by the intrusion of a number of scattered immigrant cultures than by any consistent home-grown product such as had marked the middle Bronze Age. These prehistoric potsherds therefore from ‘ Old England ’ are just such as we should expect to find in association with the foreign bronze implements from which our search began. Pottery of this rough and friable kind, in quantities such as were found in the restricted area explored by us, unquestionably indicates a local settlement of the period; so that although our excavations have failed to reveal an actual ‘ Hallstatt ’ lake-village at ‘ Old England ’, they at least help inferentially to substantiate one of the essential elements in Mr Crawford’s theory.

In conclusion a word may be said in regard to two points which emerge from our Brentford excavations. The first of these must

¹ See *Archaeologia*, LXXVII, 179.

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already have struck the reader almost as forcibly as it struck the excavators. The pile-dwelling was at, or even below, the present low-tide level of the Thames. Moreover, a majority of the fragments of prehistoric pottery were found even further still below the level of the low-tide. Again, it was yet further out that the late Bronze Age

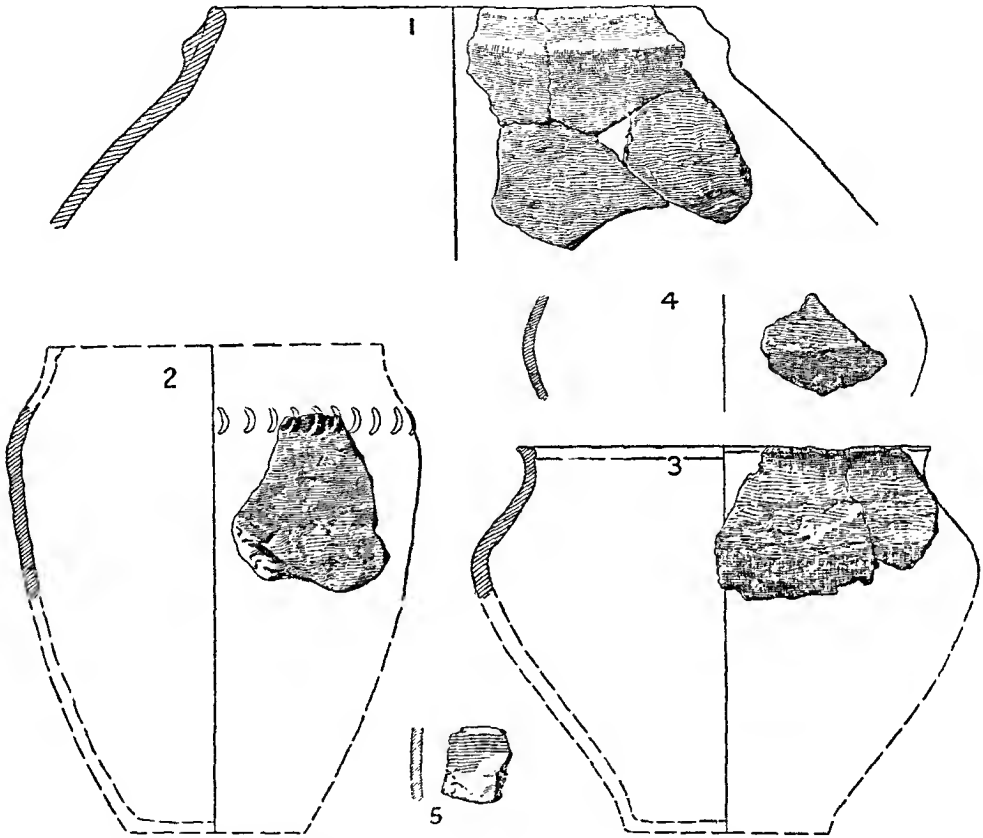


FIG. 4. PREHISTORIC POTTERY FOUND AT AND BELOW LOW-TIDE LEVEL. (†)

implements were dredged up. It is clear that in prehistoric and Romano-British times the water-level of the Thames was here very much lower than at the present day. This fact has long been recognized, but no more forcible piece of evidence has yet been produced.² Without reopening the whole problem in the present context, it is now agreed

² For a discussion of this point see the report of the Royal Commission on Historical Monuments on *Roman London* (1928), 13 ff.

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that in the neighbourhood of London, at the beginning of the present era, the level of high tide must have been 15 feet or more below its present level in relation to the existing land-surface ; and it is probable that the tide, which now flows inland as far as Teddington, scarcely extended at that time above the site of London Bridge.

We may therefore suppose that in the ‘ Hallstatt ’ period, the Thames at Brentford was a tideless stream, only half the width perhaps of the present tidal river, and that in Romano-British times, although it may have grown in size, it had yet scarcely reached the present low-tide level. Our Brentford evidence enables us to go a little further. The remains of the Romano-British pile-dwelling were covered with a layer of clean river sand, deposited presumably by the river as its level rose

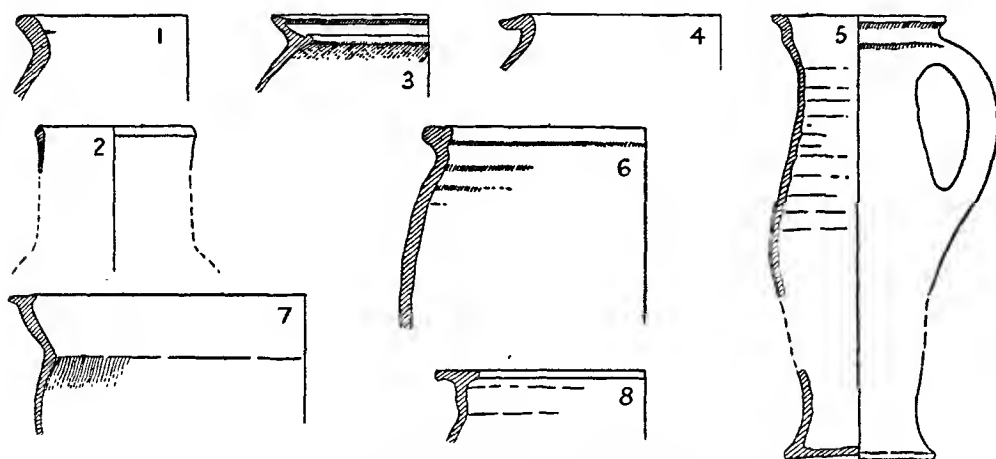


FIG. 5. 1-2, ROMANO-BRITISH POTTERY ; 3-8, MEDIEVAL POTTERY
From the foreshore at ‘ Old England ’. (½)

in later Roman or post-Roman times. In the top of this sand occur the relics of medieval occupation. Then, later in the 17th century, the ever-rising stream was embanked, doubtless by the wealthy occupants of the neighbouring Syon House. At the present day, the river hereabouts from time to time plays havoc still with its embankments, and its formidable growth is not yet perhaps complete.

A second point of interest is the close general similarity between the structural details of the Romano-British pile-dwelling at Brentford and the late prehistoric pile-dwellings of the Glastonbury lake-village. At Glastonbury also, the floors are sometimes of wattle and, though the damp-proof courses of clay are not repeated there in detail, the

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Glastonbury villagers used layers of clay in an analogous fashion in their efforts to keep above the water-level. At Glastonbury, however, the huts were in every case circular on plan, whereas ours was almost certainly rectangular. Nevertheless, the excavators of Glastonbury note that certain of the timbers of their circular huts had previously been used in rectangular structures³; and this vacillation in the choice of plan extended into the succeeding period. Thus whilst the riverside peasants of the Roman period seemingly lived in rectangular huts at Brentford, they were at the same time content with primitive circular huts further down the river at Tilbury, where, incidentally, it may be noted that the remains are now also covered by the tide.⁴ It is clear that, as in Wessex, where the researches of General Pitt-Rivers and Mr O. G. S. Crawford have shown that the greater part of the country-folk continued throughout the Roman period to inhabit their prehistoric villages and to pursue their prehistoric system of agriculture, the peasantry of the Thames valley likewise retained their pre-Roman traditions altered only superficially by contact with Roman civilization. The time is almost ripe for some ingenious archaeologist to write 'The Un-Romanization of Roman Britain'.

SCHEDULE OF FINDS

(*Note* : all the objects illustrated are preserved in the London Museum)

I. PREHISTORIC.

Fig. 4, 1 (= pl. v 1, 3). From site A. Part of the rim of a large vessel with an applied strip immediately below the lip. I have not found an exact analogy to this, but Mr Reginald Smith has shown me a somewhat similar fragment (unpublished) amongst the pottery from the late Bronze Age—Early Iron Age site at Scarborough.

Fig. 4, 2 (= pl. v 1, 1). From site A. Fragment of the shoulder of a coarse urn of gritty brown ware with a row of finger-nail (almost finger-tip) impressions. Similar vessels occurred in the above-mentioned site at Scarborough (*Archaeologia*, LXXVII, p. 187, fig. 23), in the Hallstatt area at Park Brow (*Arch.* LXXVI, p. 16, fig. 4), at All Canning's Cross, and on other sites of the same transitional period.

³ Bulleid and Gray, *Glastonbury Lake Village* (1911-17), I, 56.

⁴ Royal Commission on Historical Monuments, *South-East Essex* (1923), 38.

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Fig. 4, 3 and 4 (former=pl. v 1, 2). Both from site A. Fragments of roughly made bowls of calcited ware, one with everted rim slightly grooved on the inside. This type of rim is characteristic of ‘ Hallstatt ’ pottery ; it occurs frequently, for example, in the Scarborough series. The general type of bowl is found fairly commonly on Hallstatt sites in central and northern Europe.

Fig. 4, 5. From site A. Fragment of fairly well levigated black ware with striations. This sherd might in itself be of almost any Early Iron Age date. It is, however, closely similar to certain of the Scarborough sherds (*e.g.* *Arch.* LXXVII, pl. XXI, 13), and is probably of the same period as the preceding fragments.

Apart from many indeterminate fragments of the gritty hand-made ware found during the excavations, a piece of a flat base of similar fabric had been picked up previously by Mr Crawford on the foreshore.

II. ROMAN.

Bones of horse, ox, pig, and red deer.

Five fragments of Roman flanged roofing-tiles, and one piece of a Roman imbrex found on site A, one of the flanged tiles being discovered below the wattle floor of the hut. Three pieces of Roman brick from 1½ to 3 inches in thickness, also from site A. One complete grey pot probably of 2nd-century date (pl. v 1, 4) and 14 sherds of Roman pottery from the floor of the hut (site A), one of them being below the wattle flooring. It is scarcely possible to date any of these vessels with precision, but one of them (fig. 5, 2) is the funnel-neck of a beaker of Castor ware which is not likely to be earlier than the second part of the 2nd century.

III. MEDIEVAL.

Six pieces of medieval pottery were found (fig. 5), three of them in unsealed deposits (3–5) and three of them (6–8) in a thick layer of burnt material which underlay the 16th–17th century embankment on site B. This thick burnt deposit covered an area of some 50 square feet and was upwards of a foot in thickness. It contained bones of horse, ox, sheep, pig, red deer, and two breeds of dog (one of them short-nosed), also numerous oyster and mussel shells and the three sherds.

The following notes may be added on this pottery:—

Fig. 5, 3. Fragment of a buff vessel with traces of green glaze. The rim is grooved to receive a lid. Of uncertain medieval date.

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Fig. 5, 4. Part of a flat-rimmed vessel of grey ware and uncertain medieval date.

Fig. 5, 5. Jug of hard buff ware with slight traces of green glaze. This tall slim type is probably early medieval—12th–13th century—but has not been closely dated.

Fig. 5, 6–8, are from the same layer and are probably contemporary. 7, of sandy brown ware, is probably part of a cooking pot with sagging base, such as occurs with 12th-century pottery at Rayleigh Castle (*Essex Arch. Soc. Trans.*, new series, XII, 182 and 185). 6 is of similar ware and is likewise comparable with pottery from the Rayleigh site. 8 is of hard grey ware, and less easy to match.

IV. 16TH–18TH CENTURY.

This material came from the artificial embankment of sand and gravel referred to in the main description. The layer contained great numbers of animal bones, amongst which Professor D. M. S. Watson, F.R.S., notes the following :—ox in great quantities, horse, sheep, dog, and birds, but no deer. Other objects which may be mentioned are :—

- (1) A wooden tent peg (pl. v 2, 1).
- (2) Two brick loom-weights or net-sinkers (pl. v 2, 8).
- (3) Fragment of a 16th-century incense-pot of buff ware with green and yellow glaze (pl. v 2, 6).
- (4) Fragment of 17th-century brown slip-ware with green pattern (pl. v 2, 7).
- (5) Small drug-pot of white glazed ware (pl. v 2, 10); 17th century.
- (6) Several small 17th-century bricks, some measuring not more than $4\frac{1}{4} \times 2\frac{1}{8} \times 2\frac{1}{4}$ inches.
- (7) Several fragments of 17th- or 18th-century tobacco pipes (pl. v 2, 9).
- (8) A human femur (pl. v 2, 11), in regard to which Sir Arthur Keith very kindly sends the following note :—‘ Heavily mineralized left femur of a young person . . . The boney projection in the popliteal line is in the origin of the short head of the biceps muscle—of the nature of an injury—being an exostosis following a tear or strain in the origin of the muscle ’.

PLATE II

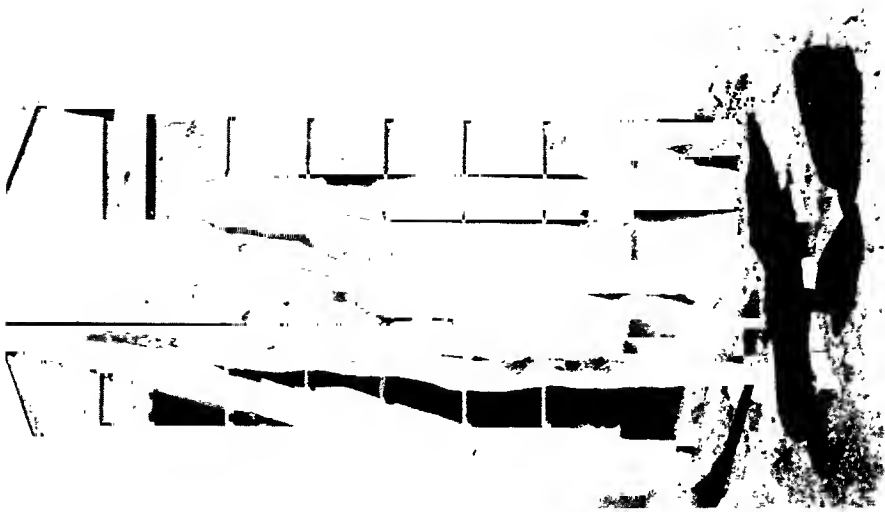


Fig. 2. OAK PILLS FROM THE ROMANO-BRITISH HUT;
AND FRAGMENT POSSIBLY OF A DUG-OUT
CANOE, MARKED X

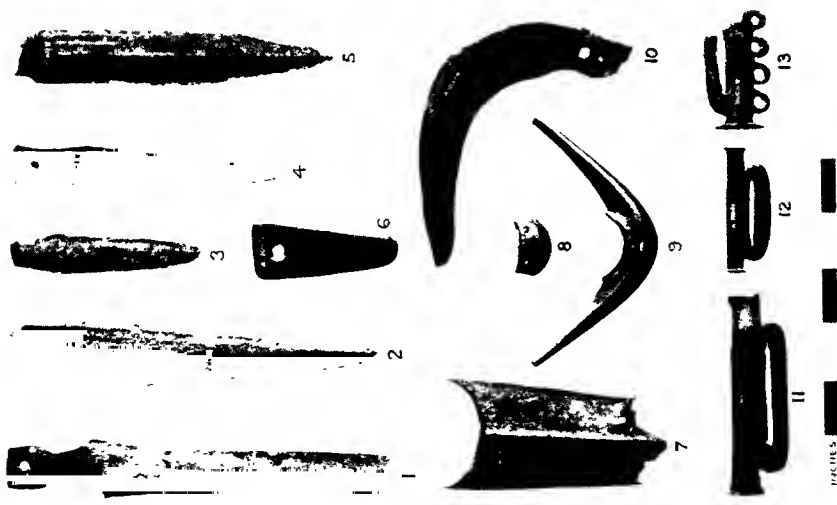


Fig. 1. 1-5, BRONZE KNIVES, 6, WHETSTONE; 7-9, 11-13,
BRONZE MOUNTINGS FROM SCABBARDS, 10, BRONZE
TANGED SICKLE, ALL FROM THE THAMES AT 'OLD
ENGLAND', *London Museum*

PLATE III



LOOK OF ROMANO-BRITISH BATH, PARTIALLY UNCOVERED, AT LOW-TIDE FLAT

Ph. H. A. Morton

PLATE IV



FLOOR OF ROMANO-BRITISH HUT AT LOW TIDE
J. H. A. Macdonald

PLATE V



FIG. 1-3, PREHISTORIC SHERDS (COMPARE FIG. 4); 4, ROMANO-BRITISH POT FROM FLOOR OF HUT



FIG. 2-11, OBJECTS EXCAVATED FROM THE FLORESHORE OF "OLD ENGLAND": 1, 17TH CENTURY TENT-PIECE; 2-5, MEDIEVAL POTTERY; 6-7, 17TH AND 18TH CENTURY POTTERY; 8, 17TH CENTURY LOOM-WEIGHT; 9, 18TH CENTURY PIPE; 10, 17TH OR 18TH CENTURY GINTMENT-POF; 11, HUMAN TIBIA

The Origin of the Kelts*

by GEORG KRAFT

THE origin of every nation lies beyond the range of written records. It is one of the principal tasks of prehistory to supplement and extend backwards the historical tradition until it brings those events within its purview. The difficulty of the task is greatest where the historical record is shortest. So the peoples of northern and eastern Europe who most deeply concern us Northerners present one of the most perplexing problems to the archaeologist.

In the case of the Teutons the problem has been materially clarified by Scandinavian investigators. Moreover Gustav Kossinna in Germany has devised for its solution a method all his own which the Vienna school has subsequently applied to the Illyrian question. But in western Europe the Teutonic invasions for the most part fall within the domain of history. The forerunners of the Teutons in England, France, western Germany and in parts of Spain and Italy were the Kelts. The latter in places maintained their identity side by side with the Teutons, and in any case constitute a vital element in the present population of the regions in question. No wonder then that archaeology turned early to the elucidation of the problem of Keltic origins.

A hundred years ago the first prehistorian at my University, Heinrich Schreiber, had already recognized the importance of this question. Like his contemporaries, he assumed that the Kelts might be identified with the pre-Teutonic population in general. The same error survives today; popular anthropology habitually speaks of the short, round-headed, dark-eyed Kelts. Schreiber regarded the Bronze Age in particular as a peculiarly Keltic product. Such a mistake reveals the stupendous methodological difficulties that stand in our path. The cradleland of the Teutons, southern Scandinavia, was never occupied by any foreign nation; in the case of the Kelts no comparable nuclear region can be identified. Almost everywhere they have been expelled from their seats by the Teutons. Even where they have succeeded

* We are indebted to Prof. V. Gordon Childe for translating this article.—Ed.

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in maintaining their purity, they occupy regions naturally designed as refuges where they are probably mixed with older layers of exiles. Moreover they only took possession of the major part of their territory, including northern France and Britain, in the centuries immediately preceding our era.

Our aim therefore is to locate the cradle of the Kelts. To that end history and archaeology must cooperate. We must first determine where and when the oldest and most reliable historical tradition allows us to locate Kelts. Then we must ask what culture the region thus fixed enjoyed at the date in question. Every great people while maintaining its national identity possesses a culture of its own. Hence in the region indicated by history as Keltic we must find a peculiar culture which may be claimed as Keltic too. A second way of approach is opened up by the warlike expansiveness of the Kelts. Where the Keltic raids and invasions impinged upon the domains of classical civilization, we may expect the oldest and most reliable reports about Kelts from the ancient authors.

The first line of attack, the quest of the Keltic cradle, has long ago been tried. Déchelette's excellent manual gives a conspectus of the results thereby attained. Here I need only recall that the Keltic migrations reached Spain even before 500 B.C., penetrated Italy in the 5th and 4th centuries (Rome in 390), traversed South and Central Germany in an easterly direction about the same time (Delphi in 279) and finally arrived in Asia Minor. The centre from which these movements radiated must accordingly be localized in the lands north and west of the western Alps on the Rhine and the Rhone. The reports of Hecataeus and Herodotus point in the same direction. Therewith we reach the limits of historical tradition in so far as it is consistent.

In their expeditions to Italy and Greece the Kelts took with them a specific civilization, the so-called La Tène culture. Its home lies in the region just defined. It is beyond question that the La Tène culture was the national civilization of the Kelts, and that it arose out of the fusion of native industry with classical influences. But whence comes this La Tène culture? The previous period, covering roughly the first half of the first millennium B.C., is known as the Hallstatt period. During it a peculiar culture extended along the northern edge of the Alps from Austria across South Germany to eastern France. Thus the last named culture embraced within its domain also the area wherein the La Tène culture was cradled. We must therefore define the relations between the Hallstatt and La Tène cultures ; we must determine

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whether the latter, in so far as it was expressed in native industry and not in imports, was developed out of the former. Unhappily to such a question we can only reply that prehistory has never tackled the problem systematically. It is further complicated by the circumstance that the East Alpine sub-group of the Hallstatt culture is today generally ascribed to the Illyrians. Of course the Hallstatt culture in South Germany and eastern France differs in by no means unessential particulars from that of the eastern Alps. Still do these none too important divergences justify the attribution of the respective cultures to two absolutely distinct peoples, Illyrians on the one hand and Kelts on the other? Some of the earlier writers have in fact refused to make such a division; some like Déchelette ascribe the whole Hallstatt culture to the Kelts, others like Schliz prefer to see in the South German Hallstatt culture an outpost of the Illyrians.

Since the light of historical tradition does not penetrate into the Keltic cradle, we must have recourse to the second plan outlined above and look where the Kelts for their part approached the light of classical civilization. In Greece and Italy they appear already in possession of the La Tène culture so that we obviously get no further. But may they not have invaded other countries at an earlier date and in possession of a culture older than the La Tène?—*i.e.* of Hallstatt age? That is in fact the case. Even Déchelette recognized that the Kelts had invaded Spain before 500 B.C., and the La Tène culture began about that date. We therefore eagerly enquire what culture these oldest traceable Kelts enjoyed.

The possibility of answering today this question, which in Déchelette's time was still insoluble, is due to the careful excavations of several Spanish investigators. I may instance the Marquis of Cerralbo and above all Prof. Bosch-Gimpera of Barcelona, who by unremitting labour and with extraordinary acumen has collated all the archaeological and historical data on the settlement of his country in the happiest way. As a result it is now certain that the Kelts were the bringers of a late Hallstatt culture whose distinctive features in Spain are cremation and the horse-shoe sword (other traits such as the girdle-clasp are local or Greco-Carthaginian). Now the same short sword with horse-shoe pommel recurs in the late Hallstatt culture of southwest Germany and France. We are therefore justified in claiming for the Kelts the Hallstatt culture of this area whose individuality is expressed in ornament and in other peculiarities.

But not satisfied with this, Bosch-Gimpera has made a second and

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almost more valuable contribution to the solution of the Keltic problem. The late Hallstatt culture of Spain just mentioned is restricted to the north, the centre and the west of the Peninsula. And it was precisely here that Keltic tribes (Berybraces, Cempsí, Saefes) were settled at a later date according to the classical authorities. On the Mediterranean coasts however the Iberian tribes maintained themselves and indeed reacted upon the invaders (hybrid Keltiberian culture for instance at Numantia). In harmony therewith the late Hallstatt culture is entirely missing, for example in Catalonia.

This circumstance is of extraordinary significance. For there are plenty of typically Keltic place-names in Catalonia such as Besalú, Verdú and Slardú (containing the element *dunum*) or Vulpellac and Gaussac (formed with *acum*). The late Hallstatt Kelts cannot be responsible for these names ; a still later invasion, say of Gauls, into regions so close to Emporion could not fail to have left its mark on historical tradition. Must we not therefore acknowledge herein proof of a still earlier intrusion of Kelts ? I might also mention that Avienus speaks of the tradition that about 600 B.C. Iberian tribes advanced along the coast from south Spain to the Rhone and destroyed Narbo (Narbonne) 'ferocis maximum regni caput'. What was this 'regnum'? Can this kingdom have been Keltic and can its traces in the shape of the above-mentioned place-names have survived to this day? What has archaeology to say to this ?

Bosch-Gimpera has solved this problem too. In Catalonia and in that part of Spain alone a substantial number of urnfields with their connected settlements have come to light. In their character these correspond exactly to those of the early and middle Hallstatt period of South Germany. Bosch-Gimpera and his colleague, Colominas, have thoroughly excavated one of these urnfields at Terrassa and have published the essence of their results. These Catalonian urnfields belong to an age prior to 600 B.C., and so anterior to the advance of the Iberians just recalled. Judging by their aspect they were laid out by invaders from the slopes of the western Alps, where we have provisionally localized the Kelts' cradleland. This is the sole invasion that can be traced in the whole of Catalonian prehistory. The invaders occupied the fruitful plains of the coast while a native culture persisted in the mountainous hinterland. With them arrived a new breed of domestic animal, an ox of the maritime breed.

All these indications point in the same direction. The folk buried in these urnfields must have been responsible for the afore-mentioned

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Keltic place-names. So they must have spoken a Keltic language. This is the oldest certain basis that is so far obtainable from historical tradition and it is unlikely that we can exceed it. That circumstance justifies a somewhat more detailed scrutiny of these urnfields.

As is implied in the name, the dead were without exception cremated, the ashes enshrined in an urn, and this covered with a dish or a stone and buried in the earth. A multitude of such flat graves were grouped together, forming a cemetery or urnfield. At Terrassa the oldest part lay in the east and the graves spread out gradually westward. Grave goods are almost totally lacking. The urns possess biconical bodies surmounted by a cylindrical or conical neck with *everted* bevelled rim. They are often decorated with meander patterns. Thus they recall both in form and decoration the Villanova urns of Italy. The lids are ornamented sometimes with ribs, sometimes with fine linear incised patterns. The last named motives as well as some of the urns and dishes agree perfectly with the pottery of the Swiss lake-dwellings and the Rhenish urnfields.

This observation brings us back for a third* time to the same region, eastern France, southern Germany and Switzerland, as the cradle of the Kelts. What then has archaeology to tell us about these countries at the time in question? Owing to the political division between three distinct States their exploration is very uneven. Chantre's investigations in particular have not been continued along modern lines. A few years ago I began an examination of the Swiss Bronze Age to round off my studies on the South German. I was at once struck with the fact that throughout prehistoric times great unitary cultures occupied the upper courses of the Rhone and its tributaries, the Saône and the Doubs, that is to say, Burgundy, Franche Comté and western Switzerland including Valais. Yet as a whole these cultures had escaped the notice of prehistorians. Of course everyone knew of the Neolithic and Late Bronze Age lake-dwellings of western Switzerland and Savoy. Specialists were acquainted also with the rich Iron Age barrows of the Jura and Côte d'Or. But no one had recognized that a no less brilliant or powerful culture flourished here in the Early and Middle Bronze Age. The reason of this ignorance was simply that its remains had been tragically dispersed through unlucky accidents; only in the last few years have a few closed finds been rescued through the intervention of the museums in Bern and Zurich. Yet in point of fact this region

* See pages 34, 35.

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constituted a unitary and self-contained cultural province which I have proposed to call Rhone culture or the West Alpine culture. I have set forth in detail the proofs of this contention so far as it applies to the Bronze Age and within the limits allowed by the extant material.

Now a whole series of geographical and stylistic considerations support the claim of this region to the title of the Keltic cradle. The land is admirably adapted for settlement and throughout history has repeatedly shown itself to be a reservoir of population. To prehistoric man, who shunned the primeval forest, the limestone of the Jura, the dry valleys of Valais and the banks of the innumerable lakes offered attractive settlement sites. The same circumstances facilitated traffic, and we know that at least in the Bronze Age the Alpine passes were frequently used, probably as a consequence of the post-glacial warm dry phase. Our area lies in proximity to Italy, the Mediterranean, Spain with her wealth of ores, the French flint mines and the East Alpine cultural province. Northward too the way leads to the amber of Jutland and the Teutonic bronze industry. Even in historical times an intense cultural focus lay here. In the *Völkerwanderungszeit* the tribe of Burgundians settled here, and from its fusion with the natives sprang the wonderful civilization of the medieval Burgundian kingdom.

It is moreover significant that throughout prehistoric times right down to the threshold of the Middle Ages a specific and unitary style persisted in this district although often overlaid by foreign elements. In the New Stone Age this style was not yet definitely formed, but expresses itself with masterly firmness in the decoration of the great triangular daggers of the Early Bronze Age. (Though hitherto regarded as Italian, far more have been found in graves in Valais and its environs than in any other comparable region). In the Late Bronze Age the pottery of the lake-dwellings, and in the Hallstatt period the barrel-armlets, give expression to the same artistic tradition. In the La Tène period classical influence inspired by Romano-Hellenistic naturalism for a time ousted the native art, but as Unverzagt¹ has shown, the latter persisted in spite of all and emerged again in late Roman pottery as classical influence ebbed. While in Ireland the curvilinear La Tène patterns survived down to the beginning of the Middle Ages, native ornamentation in the proto-Keltic area was strictly rectilinear in late Roman and Merovingian times.

¹ *Präh. Zeitschr.* xvi, 1925: 'Studien zur Terra sigillata mit Rädchenverzierung'.

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The West Alpine style is in fact characterized by a rigidly and very highly developed rectilinear stroke-ornament. It resisted curvilinear motives (*e.g.*, the spiral) as far as possible ; the meander was inspired by south-eastern cultures but immediately transformed and soon eliminated altogether. Naturalistic motives were absolutely rejected. In comparison with Teutonic and Illyrian industrial art the early Keltic is very conservative, particularly in the form of vases. Perfect elegance combined with an obstinate conservatism in shapes is the characteristic feature of this art as a whole.

But how did this West Alpine culture arise ? In the neolithic period a sub-group of the Western cultural family, best known from the lake-dwellings, dwelt in these regions. Before the end of this period the population was augmented by substantial contingents of Pyrenaean megalith-builders and Bell-beaker folk. About the same time the land was overrun by Nordic hordes too. The Rössen people descended the Rhine from Central Germany, to be followed at the beginning of the Bronze Age by Corded-ware folk. Still more important were currents from Bohemia and Hungary, where the Aunjetitz culture had grown up out of Nordic and Danubian elements. Now this Aunjetitz culture is of first class importance for the Aryan question ; for Hellenes, Illyrians, Italici and Kelts seem to be rooted in it. In any case it extended across South Germany and Upper Italy to the Rhone. Through its fusion with the native and immigrant West European population and with the Rössen and Corded-ware folks arose the West Alpine culture of the Bronze Age.

The latter once again was reinforced by contingents from the East. At the very end of the Bronze Age tribes spread from the area in Austria and eastern Germany, that may loosely be designated the Lausitz province, and reached the Swiss lake-dwellings and eastern France. These are the people of the South German urnfields. But as soon as they reached the domain of the West Alpine cultures their character was gradually but unmistakably modified ; they were, that is, absorbed by the natives. The advance just described obliged part of the West Alpine population to migrate westwards ; they it was who made their way to Catalonia.

We thus obtain the following crucial dates in Keltic prehistory.

c. 2500-1800 B.C. Intrusion of Nordic and Aunjetitz folk into the West Alps and their foothills ; fusion of the invaders with the native West European population to form the authors of the Early Bronze Age culture.

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1200 B.C. Invasion of Lausitz urn-field folk. Emigration of part of the West Alpine population to Catalonia.

600 B.C. Beginning of the historical Keltic migrations with an invasion of northern Spain.

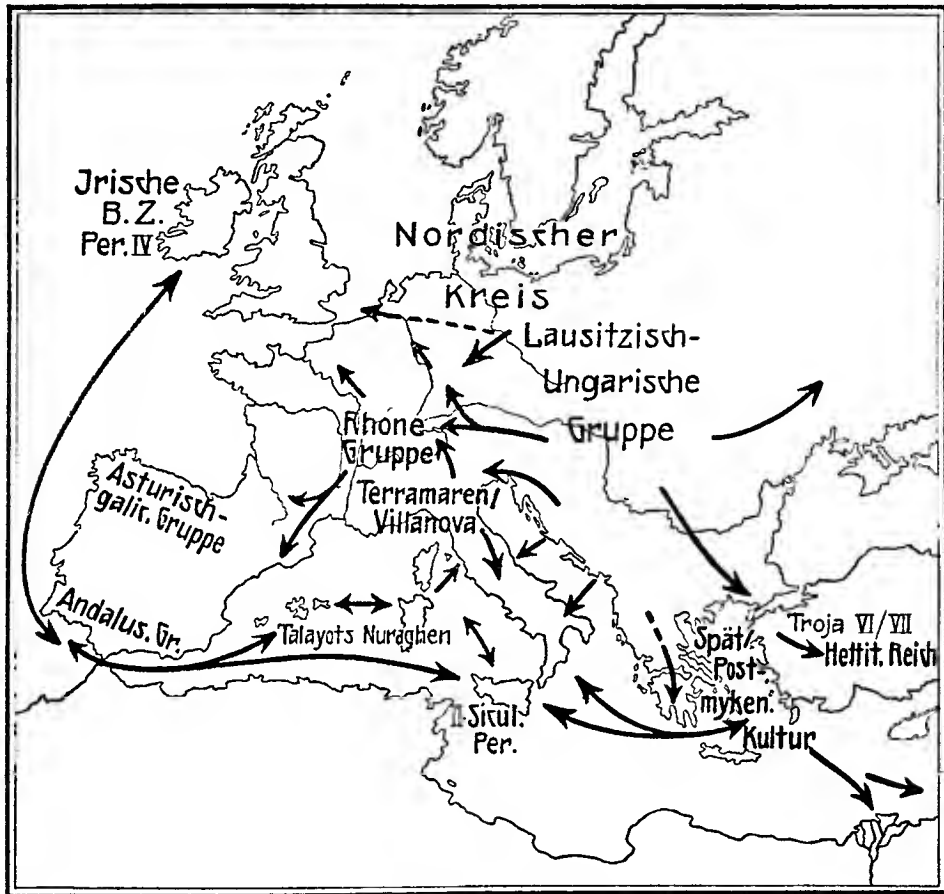
Now a decision on the point at issue between Déchelette and Schliz as to the ethnic attribution of the East and West Alpine Hallstatt cultures has become possible. In consequence of extensive commercial intercourse and of the intrusion of the Lausitz folk, the culture of the Hallstatt period is very similar throughout the whole Alpine region. To that extent Déchelette could well regard both as a unitary culture in a provisional classification. Since a strong Illyrian infusion reached South Germany with the Lausitz folk, Schliz was justified in speaking of the Illyrian character of the South German Hallstatt culture. Closer examination has, however, revealed that in this zone marked variety existed that is most obvious in Austria on the one hand and on the Upper Rhone on the other. The extent of these differences is such, combined with historical tradition, as to justify us in seeing in these two great cultural groups two distinct peoples, Illyrians and Kelts, on the same cultural level and sprung from a common stem. South Germany lay on the frontier between these two provinces and received influences from both.

Obviously Keltic history obeys the same rhythmic law, as that observed in the remaining branches of European and Asian pre-history. Towards the end of the New Stone Age we discern Nordic hordes drifting southward everywhere in Central Europe and these have been identified with the Aryans. Then in the closing centuries of the 2nd millennium the world was again in commotion: the Hittite kingdom collapses; northern peoples threaten Egypt; the Dorians invade Greece; Veneti, Etruscans, Iapyges and Messapians pour into Italy. Finally about 600 B.C. the climate of northern Europe began to change seriously for the worse, occasioning the Teutons' emigration.

Here a correlation with philological data is possible. Among Indo-European languages Keltic is most closely related to Italic. The two peoples must long have lived in intimate cultural contact. But at the beginning of the Iron Age this community was dissolved, since the word for iron is fundamentally different in the two languages. Indeed in Keltic the name of that metal has been borrowed from Illyrian. The archaeological data correspond. The Bronze Age civilizations of the Upper Rhone (Keltic) and of the Po valley (Italic) have a like origin,

THE ORIGIN OF THE KELTS

representing a West European substratum overlaid with an Aunjetitz infusion ; consequently their industry in the Early and Middle Bronze Age was similar and indeed partially identical. At the beginning of the Iron Age a transformation supervenes ; the Lausitz urnfields penetrate into western France and with them the knowledge of iron



EUROPE AT THE END OF THE 2ND MILLENNIUM B.C.

working, while in Italy such urnfields do not occur. The agreement is complete and applies to the total aspect of the culture noted above ; even in the form and decoration of the triangular daggers, the lake-dwelling pottery and bronzes and in the barrel armlets is the same *esprit* traceable.

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In the foregoing account I have taken the reader at a rapid pace through the tortuosities of the Keltic problem and have described the position as it appears from the standpoint of the new view elaborated by Bosch-Gimpera and myself. For details, in so far as any are available, I must refer the reader to the specialized literature. The expert will, however, have noticed that the path of our argumentation is a strait one and for long stretches still unpaved, while on either hand wide regions still lie beneath the mists. I should be the last to overlook these difficulties and for this reason have avoided any premature conclusion in my previous works. The abandonment of this sceptical attitude is due to the extraordinary agreements between the Swiss and the Catalanian finds, between the conclusions of Bosch-Gimpera and myself though we were both working independently. These seemed to me a guarantee for the correctness of the view just advanced above.

The outstanding questions are, on the contrary, of secondary importance. But a few of these might be briefly mentioned.

In the case of England the main question is—Who were the first Kelts in the British Isles and whence did they come? The discoveries at All Cannings Cross provide a new basis for the solution of this question, as does the subsequent identification and publication of a corresponding culture on the Continent near Epernay in the Jogassien. The Society of Antiquaries are to be congratulated on providing a substantial scholarship to enable an English student to devote himself to the intensive investigation of such finds. Only through the cooperation of all countries interested in the Keltic problem can a real and comprehensive solution be obtained.

Proof of the obscurities still enshrouding the archaeological relations between Britain and the Mainland is provided by the circumstance that three investigators in the course of the last two years have independently recognized in the Late Bronze Age influences from the islands on the Continent (Kraft in the razors,² Sprockhoff in the shields,³ and Favret in the decorative buttons). Until such questions be faced in their finality—and the Bronze Age of Britain might be added—it would be premature to enunciate theories on the basis of isolated phenomena. For instance it is plain that the West Alpine cultures played a leading part in the elaboration of the bronze swords

² 'Urnenfelder', *B. J.* 131, p. 187.

³ Ebert, *Reallexikon*, XI, p. 259.

THE ORIGIN OF THE KELTS

(*Antennae*, Mörigen–Auvernier–Hallstatt B sword-series). But were the North French flange-hilted swords the product of the same industrial province or on the contrary were the Rhone cultures influenced thereby? Who shall decide?

Another entirely unsolved question is raised by the Ligurians. They are a non-Indo-European aboriginal race who on the testimony of place-names once inhabited the whole of western Switzerland and the adjoining territories down to the Rhine and the Rhone. And so many authorities have attributed the local Bronze Age to them. But in point of fact the Catalonian urnfields connect these Bronze Age cultures with the Kelts, and hitherto it has been impossible to ascribe a specific culture to the Ligurians such as has been discovered and recognized in the case of the Germans, the Illyrians and now the Kelts. This circumstance is quite in harmony with the ancients' accounts of the savage character of this mountain tribe. Doubtless their domain had been wider in the Neolithic period while in the Bronze Age migrations they had become penned up in the mountains or absorbed.

A third series of complicated questions is raised by the Bronze Age cultures that, before the intrusion of the urnfields, occupied South Germany and France side by side with the Rhone culture, but yet can be neither Keltic nor Illyrian nor Teutonic. The best known is that characterized by fretwork decoration in pottery and burial under a barrow. The last named peculiarity is also attested for the Kelts of the Jura (the choice between flat graves and barrows is largely determined by the nature of the soil, economics and social conditions). But the grave-goods on the Rhine and on the Danube for example are so different that I find it impossible to ascribe to the barrow-builders a unitary culture or even an ethnic unity. When these questions are solved—and being purely archaeological they presumably admit of a solution—their correlation with the special data of comparative philology and historical tradition must begin. For instance do divergences in material culture correspond to the two great divisions of Keltic speech? What of the two main groups of Early La Tène culture, Marnian with flat graves, and the regal barrows on the Rhine?

A multitude of enthralling problems challenge us, but their solution presupposes painstaking study. Only when that has been accomplished shall we be entitled to talk of a comprehensive theory of the Kelts. But the task is possible. If only the prehistorians in all the lands concerned had explored their territories as exhaustively as Bosch-Gimpera has done in Spain the final solution would be a simple task.

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The older views are best summarized in Déchelette's *Manuel d'archéologie pré-historique*, III, Premier âge du fer. A convenient review of the more recent work in Spain and the West Alps is given in the article by Bosch-Gimpera and Kraft in the Kossinna-Festschrift, *Zur Keltenfrage*. The earlier works of both authors are cited there. Of these we need cite here only the following :—

- Bosch-Gimpera. 'Los Celtas y la arqueologia celtica en la peninsula ibérica'. (*Boletin de la Sociedad espanola de excursiones*, Madrid, 1921). An extract is given in *Die Kelten und die keltische Kultur in Spanien*, Mannus Bibliothek, 22.
- — 'Els Celtes i les cultures de la primera edat del ferro a Catalunya'. *Butlleti de la Assoc. Catalana Antrop. Etnol. i Prehistoria*, iii, 1925, pp. 207 ff.
- — 'Pyrenäenhalbinsel', in Ebert's *Reallexikon*.
- Kraft, 'Die Stellung der Schweiz innerhalb der bronzezeitlichen Kulturgruppen Mitteleuropas'. *Anzeiger f. Schweiz. Altertumskunde*, 1927-8.
- 'Kelten', in Ebert's *Reallexikon*.

PLATE I



THE SCUTTERIAN WORKSHOP OF THE ROCK IN THE CENTER IS THE SCUTTERED ROCK IMMEDIATELY AFTER ITS RELEASE

The Solutrean Sculptures of Le Roc

by HENRI MARTIN

RECENT discoveries in the Valley of Le Roc (Charente, France) have thrown entirely new light upon the art of the Solutrean period. Though gems of flint workmanship, like the laurel-leaf blades and single-sided shoulder-points occur, engravings and sculptures were formerly considered rare.

Before the Le Roc discoveries, the known Solutrean engravings were confined to an antelope head found at La Cave (Lot) by M. A. Viré, a horse identified at Solutré by Dr F. Arcelin and the Abbé Breuil, a mammoth from Bavaria and another from Ardèche (France). To these should be added the sculptures of the Fourneau du Diable (Dordogne), found by M. Peyrony. These last were on blocks which rested on a typical hearth-level and their age seems quite certain. Their style, compared with that of Le Roc, is relatively primitive.

The station of Le Roc has added to this list a remarkable series of engravings on limestone. Since 1925 I have published engravings of a small horse and of a bison, later a fine engraving of a large ox superimposed on a bear, this last being executed with great skill and care. The engraving, moreover, is not always limited to simple lines ; taking advantage of the natural features of the stone, including imbedded fossils, the artist accentuated certain of them. Thus he uses a fossil polype to form the body of a strikingly realistic serpent.

Up to the end of 1927 my researches at Le Roc had yielded only one instance of sculpture—a cylindrical bit of limestone surrounded by grooves and having at one of its extremities lines drawn to delineate a human face. The full development of the sculptural art of the Solutrean period only became evident after the recent discovery of the workshop of Le Roc with its remarkable frieze.

The Le Roc valley is bounded on each side by cliffs about 20 metres high. In the northern cliff, which of course faces south, are many caves and rock-shelters. The river, reduced now to a mere streamlet, was formerly much wider and must have yielded an abundant supply of fish, while the adjacent plateau would provide the hunter

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with big game required for food such as reindeer, horse, and wild oxen. The cliff on the right bank, in the neighbourhood of two deep caves, does not fall vertically ; the descent is interrupted by a platform, discovered in process of broadening the trenches already dug in the slope. The advantageous position of this platform had been noted by the Solutreans, who had therefore occupied it. Vast deposits of burnt bones, ashes, and calcined pebbles prove a long period of occupation. Flint flakes are abundant, and even complete implements of the best workmanship are not uncommon. These include laurel-leaf blades, single-sided shoulder-points, piercers, graters, scrapers, found in the ashes and rejects.

The workshop occupies an area of about 40 square metres ; it was bounded on the upper, or cliff, side by large blocks of stone, arranged in a semicircle. (Plate I). Wishing to continue my researches under these blocks, which covered part of the archaeological deposit, I had the first block on the right thrown over by a charge of high explosive. It weighed about 500 kilograms, and after it was overthrown, I saw a fine sculpture on the lower side which had been in contact with the archaeological deposit. Even before any cleaning was attempted, one could distinguish a small horse, about the size of a fox-terrier, and the body of an ox lacking the head, which turned up on the next block. It proved, however, to be not a real ox but an imaginary animal with a head like that of a boar or carnivore, an elliptical eye, an elongated muzzle, pointed ears, and no horns. The sculpture is very carefully carried out and the details well executed. (Plate II). The animals are represented as walking, the precision of the movement reflects an astounding power of observation in the artist. The same can be said for all the figures of the frieze. The sculpture is executed in very deep *champ-levé*, with a relief of 6 centimetres in places. The total length of the block is 1.64 m.

Proceeding to disengage the blocks in sequence along the left side of the semicircle I detached three less bulky stones. When reassembled they produced a complicated scene, whose principal subject is a horse. In examining its method of execution one finds that the head of a first animal, an ox, had been broken off, and another substituted, that of a horse. (Plate III, c). The fore feet and the neck of the original ox are both plainly visible. The fore foot of a second ox can also be seen, suggesting two animals facing each other. This superposition is very common in *engravings* of the Reindeer Age, but in sculpture it is, so far as our knowledge extends, quite exceptional. Another block produced yet another horse, of the same size as the last. (Plate III, d).

PLATE II



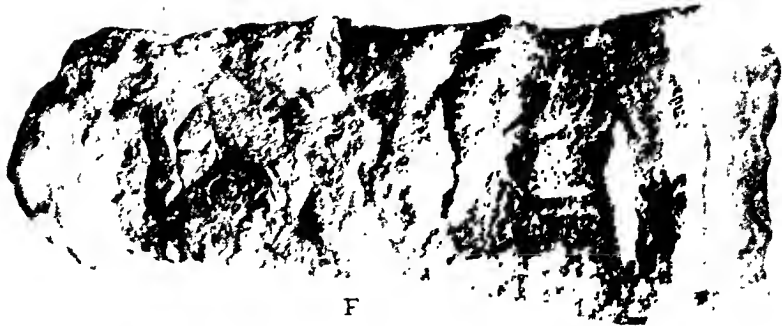
HORSE AND PSEUDO-OX OR PSEUDO-BISON, LE ROC

facing p. 46

PLATE III



D. SHORT LEGGED HORSE. C. HORSE AND REMAINS OF AN OX DESTROYED
BY THE SOLOTRIAN SCULPTOR



F. LEFT A MASKED MAN, CENTRE TWO SMALL HORSES, RIGHT MASK OX,
CHARGING MAN SHOWN ON LATERAL FACE

THE SOLUTREAN SCULPTURES OF LE ROC

The last block situated at the extreme left of the semicircle was of large proportions, measuring 1.52 m. in length. It was removed with every possible precaution, and on the under side (which was again in contact with the archaeological deposit) were revealed numerous and complicated sculptures. We see from left to right first a sketch figure apparently representing a masked human being, with bent legs, in an attitude suggestive of dancing. Next, towards the middle of the panel, are two small horses, and, below, another animal rather difficult to identify, with elongated muzzle and raised tail. Then to the right the body of a large musk-ox extends to the edge of the block. The hind legs are in motion and the lowered head is seen between the fore legs, as if in the act of charging. On the side of the stone is the very realistic representation of a man in flight. His stick rests upon his shoulder, his legs are bent, and he is looking sideways as if in terror.

The study of these sculptures suggests that they were executed by more than one artist. Some of them are simply rough drafts, others are carefully finished; salient portions of the stone are even in some cases made smooth by polishing. But the picture of the charging bull is a work attributable to an artist of the first rank.

It is probable that the bas-relief was enhanced by colour, traces of which, in the form of manganese, still survive on the sculptured surface. This process has, moreover, been observed on many of the engravings copied by the Abbé Breuil in Dordogne and in Spain.

The implements used by the sculptors of the Reindeer Period were very simple. They consisted of large, strong gravers of flint, for chiselling out the stone, scrapers to make smooth the surface, and hammer-stones for hammering and pecking. Traces of this work are still visible. The sculptured blocks were originally set on stone bases, the whole forming a kind of frieze only slightly above ground level. Against this background, on the platform in front, the Solutreans lived, chipping flint and cooking their meals. Here too, doubtless, the artists did their work. What was the motive which inspired them? Was it religious or magical? Mystical engravings usually occur in the innermost recesses of caves. Can one see in these designs a love of art which was its own justification? There is no answer to these questions; but at Le Roc one may see one feature which is common to most of the sculptures—they seem to represent pregnant females. We may thus suppose that a worship of fertility is a possible explanation.

All the sculptured blocks were found lying in a semicircle, with the ornamental faces on the ground and the backs of the animals towards

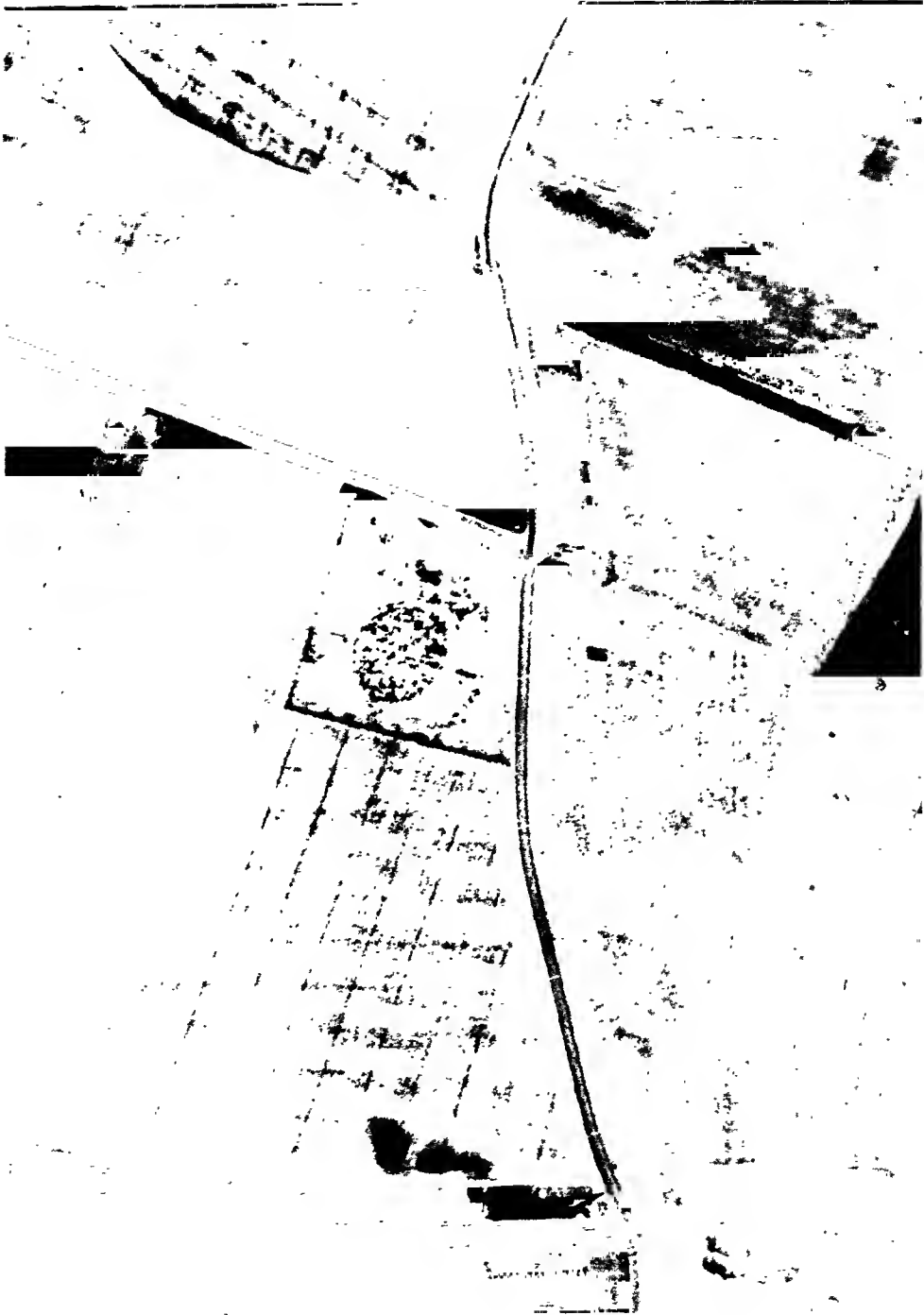
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the platform. The blocks were therefore intentionally overthrown ; one might attribute this to the vandalism of an invading people. The blocks rested on a Solutrean occupation-level and were covered by two other layers which can be attributed to the Solutrean period. The sculptures are thus precisely dated ; they belong to the period of the highest development of Solutrean technique and cannot be confused with the Magdalenian period, which is wholly unrepresented at Le Roc.

Near the workshop, under a shelter of stone blocks, I found a Palaeolithic burial. It consisted of three skeletons resting on a Solutrean hearth 90 centimetres thick. These skeletons are of great importance—they belong to the Chancelade type, the skulls are carinated, the faces broad and flat, the orbits rectangular. Their height, calculated from the long bones, was small ; one was no more than 1.52 m. and the other 1.57 m. They approach the type of modern Esquimaux. The skeletons were buried under stone blocks, and amongst them I found several worked flints of Palaeolithic type, and several reindeer bones. The presence of the reindeer remains is important as evidence, for it shows that the burial cannot be Neolithic. Since the skeletons belong to the Reindeer Age, have Chancelade features and a Mongoloid aspect, there is nothing to prevent our attributing them to the Solutrean period.

The Solutrean period is not precisely defined ; its deposits are not constant ; in whole regions they are entirely lacking ; but there is complete unanimity of opinion that it falls between the Aurignacian and Magdalenian. The work carried out for many years in the valley of Le Roc causes me to differ somewhat from orthodox writers in my opinion of the Solutrean period. I think that it should be regarded, not as a true *epoch* but as a *phase*, during which Mongoloid invaders influenced the sedentary tribes of Western Europe. These men, far from being ignorant of sculpture and engraving, brought in with them the remarkable technique of flint-working and they possessed amongst them artists of the highest talent. These Mongoloids—the authors of the Le Roc frieze—arriving at the close of the Aurignacian period, formed small centres whose skill and talents were imitated. That the influence of these tribes was unevenly exerted we may infer from the frequent absence of the Solutrean layer in deposits of the Upper Palaeolithic period. Their artistic inspiration, however, is undeniable.

PLATE I



DERRINGTON WALLS AND WOODHENGLE 1928 AFTER EXCAVATION

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Durrington Walls

by O. G. S. CRAWFORD

PROBABLY not one in ten thousand of those who pass through the middle of Durrington Walls is aware of its existence. Though plainly visible when once pointed out, the earthen ramparts have been so greatly altered by ploughing as to be hardly recognizable, and the reconstruction of their original form is a very pretty exercise in field-archaeology.

The walls consists of a round enclosure, cut into two unequal parts by the road from Amesbury to Netheravon (Wilts), about a mile and a half north of Amesbury, on the west bank of the Avon. Woodhenge is only eighty yards to the south, close to and on the west side of the same road. The earthwork differs fundamentally from the ordinary defensive 'camp', for it encloses, not a hill-top but a coombe or hollow, and it has its ditch *inside*, not outside, the rampart. In this latter respect it resembles the circles at Avebury and Marden in Wilts, Knowlton in Dorset, Thornborough in Yorkshire, and Arbour Low in Derbyshire¹; though there are points of difference. In size, Durrington Walls compares closely with Avebury, whose great earthen circle is slightly smaller in diameter; from east to west the internal area of the Walls is 1300 feet across, and from north to south about 1160 feet. (The average diameter at Avebury is 1130 feet). Both too are within easy reach of a stream, the Avon being 100 yards from the eastern entrance of the Walls, and the Kennet 330 yards from the nearest point of the great circle at Avebury. The enclosure at Marden actually touches the banks of the Avon at a point higher up in its course.

The site has been strangely neglected by archaeologists. It did not escape the eagle eye of Sir Richard Colt Hoare (*Ancient Wilts*, 1, 1812, p. 169) who picked up a great deal of pottery within the area. Not a scrap is now to be found on the surface; but in 1927 I was lucky enough to find the half of a perforated stone (fig. 1) not far from

¹ See my notes in the Handbook of the British Association for the Leeds Meeting, 1927.

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the centre. I sent it to Dr H. H. Thomas, of the Geological Survey, who says that 'it is made of an olivine dolerite which in this instance is characterised by decomposed crystals of olivine showing as small dull red grains'. With regard to the probable source of this material, Dr Thomas says: 'I think we may dismiss Devon, Cornwall and Wales, also the Lake District and the North of England generally. But rocks of similar character occur along the Welsh borders at Rowley in Shropshire, south of Wellington'. He added that several large polished axes

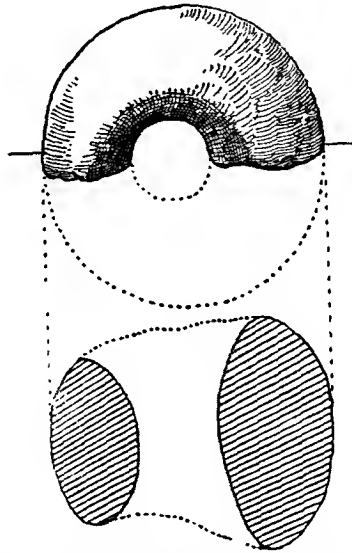


FIG. 1. PERFORATED OBJECT OF DOLERITE, PROBABLY HALF OF A MACE-HEAD, FOUND INSIDE DURREINGTON WALLS: SCALE 1:2. (Devizes Museum)

of identical material have already been found in Wiltshire²; and, without knowing where it had been found, guessed that this also was a Wiltshire specimen. The shape is curiously asymmetrical, and it may have been made from the broken half of a perforated stone axe-hammer, like the specimen found recently at Thornton Dale in Yorkshire. (*The Naturalist*, September 1928, p. 286).

For more than a century after Colt Hoare's time no one seems to have paid any attention to Durrington Walls; but in 1917 Mr Percy Farrer wrote a most valuable account of it in the *Wiltshire Archaeological Magazine* (vol. XL, 95-103), illustrated by a contour plan and four

² See his notes on these in the *Wiltshire Archaeological Magazine*, vol. XLIV, Dec. 1928, pp. 246-7.

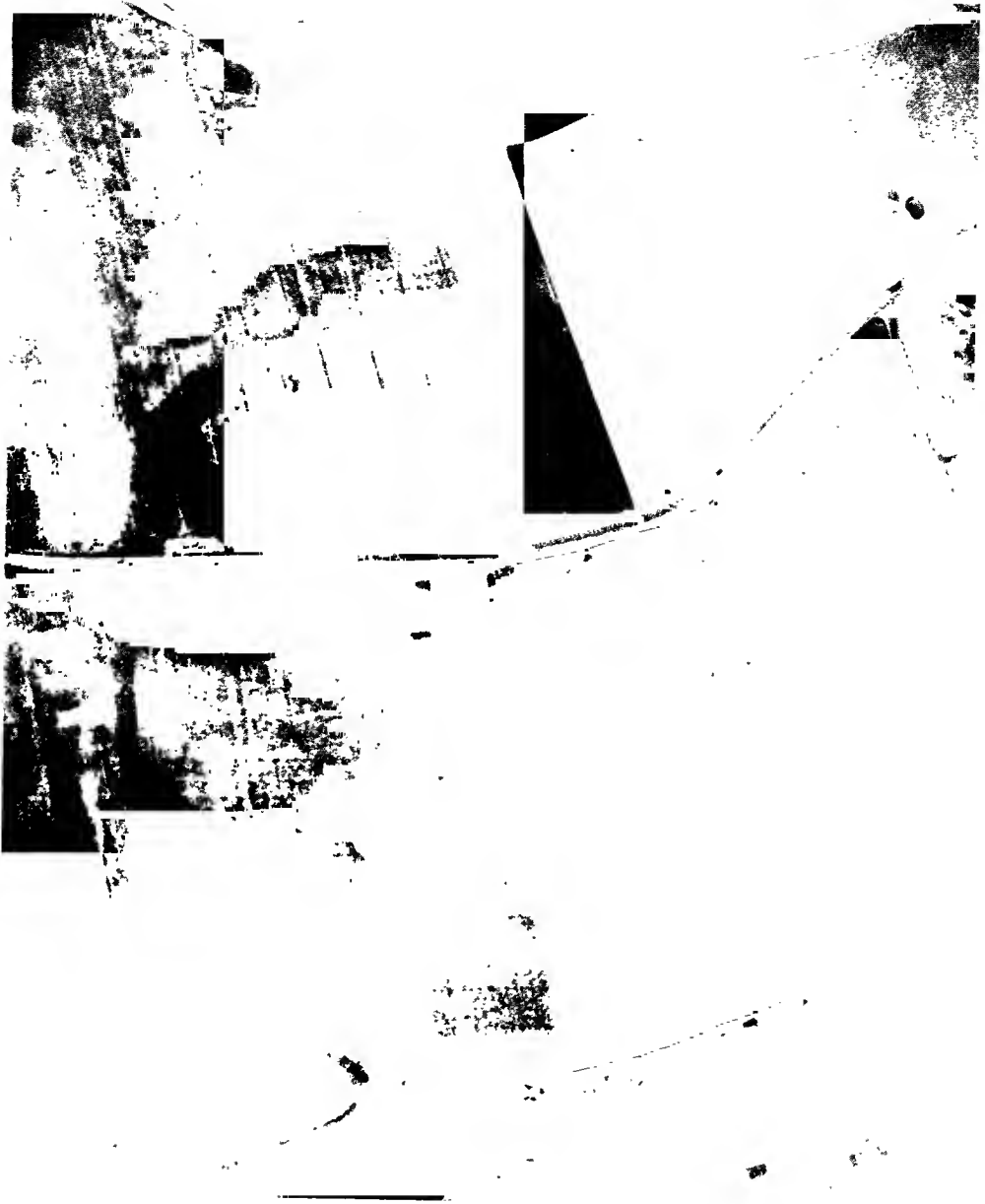
PLATE II



AIR-PICTOGRAPH SHOWING DITCH AT SW CORNER OF FIELD 1, DUPRINGTON WATTS
Dr. A. K. G. M. C. 124

facing p. 50

PLATE III



DURRINGTON WALLS, FROM AN AIR-PHOTOGRAPH TAKEN AT 1 P.M., 13 JUNE, 1927, AT 4000 FEET
By permission of the Air Council, Crown Copyright reserved

DURRINGTON WALLS

sections³. For years Mr Farrer has studied the earthworks of the Plain ; has noted and measured the exposures of soil made during the erection of Army huts ; and has become familiar with these wandering ditches whose purpose, or purposes, form so fruitful a subject of discussion. Mr Farrer had the advantage of seeing a trench driven right through the western rampart of Durrington Walls—to make a drain for Lark Hill Camp ; but he had not the advantage of using air-photographs. I am able to make use of both and hope to convince Mr Farrer of the truth of my interpretation, which differs in some respects from his.

Originally, as I said above, Durrington Walls consisted of a circular rampart and inside ditch whose larger diameter is from east to west. The present condition of the remains however, as a result of ploughing, varies in different sectors of the circumference, and each must be separately analyzed. The whole may be divided into two portions, one on each side of the modern road through it. The smaller, or eastern portion, is that in which the best visible sector of rampart and ditch is presented (Q-B in fig. 3). Both are under plough ; but the rampart is very plain, showing as a broad white chalky mound when looked at from the direction of Amesbury and from Woodhenge itself. Here the real dimensions of the bank and ditch can be appreciated ; originally they must have been colossal, to account for their present overall width of about 150 feet, the ditch alone being 40 feet across (the present width of the rampart and ditch at Avebury is exactly 150 feet). At the bottom of the coombe enclosed, at B, is a gap, representing an original entrance, as Mr Farrer has pointed out. The break in the ditch is evident upon the ground ; Mr Farrer has measured the entrance causeway between the two ends of the ditch and finds it to be 30 feet wide. Air-photographs do not show this break in the ditch, probably on account of the greater depth of soil at the bottom of the coombe ; but they *do* show a break here in the rampart. Mr Farrer was however mistaken in thinking that there was 'a gap of about 100 yards here' ; the width of the gap was very much less.

In field 4 the bank is hardly to be discerned, but it is just visible in the corner of field 5 (at H), both on the ground and on some air-photographs. There must have been a wide berm between the bank and ditch.

³ Reproduced here as figs. 2 and 4, by kind permission of Mr Farrer and the Wiltshire Archaeological Society. *Letters* refer to my own plan, fig. 3.

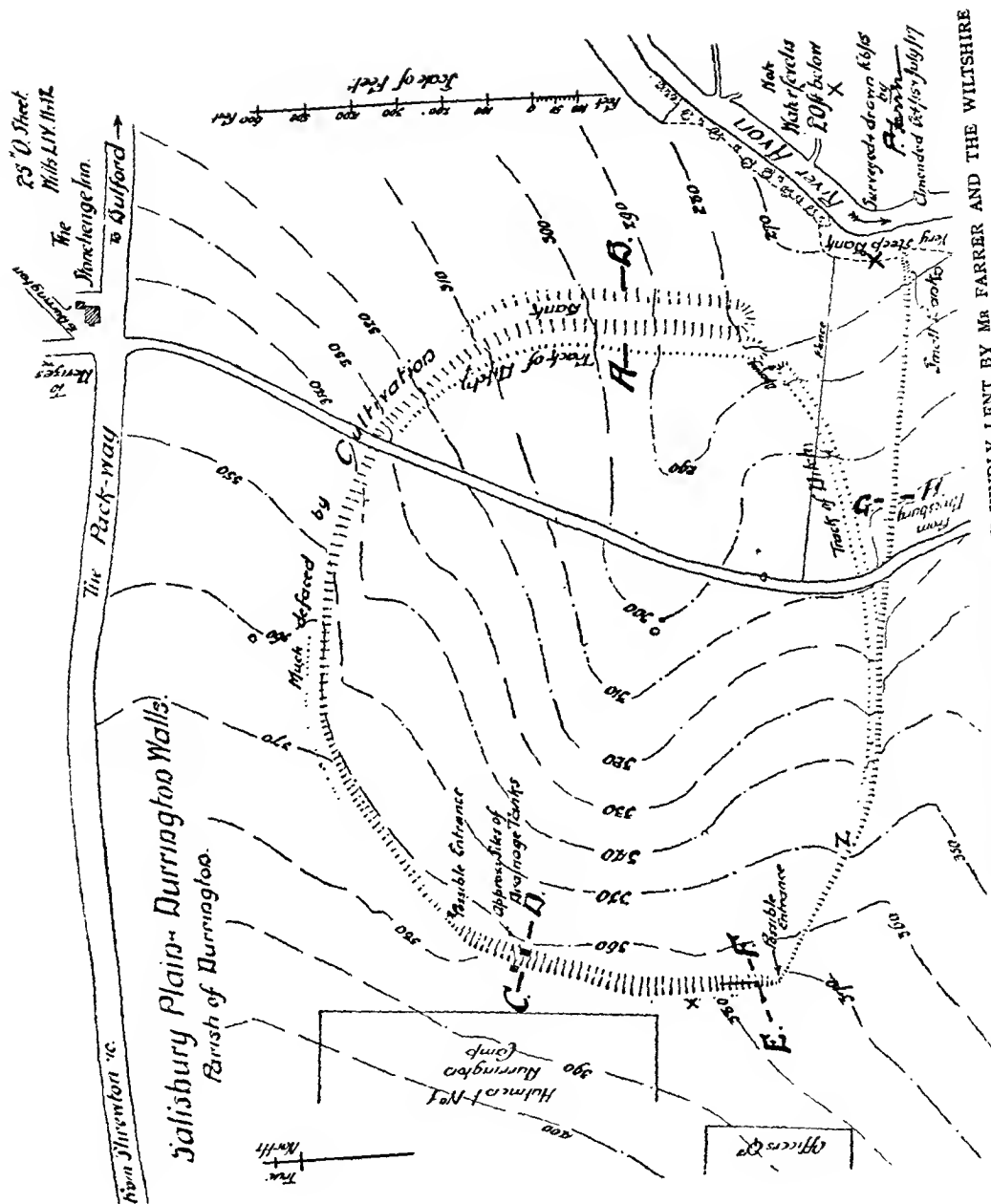
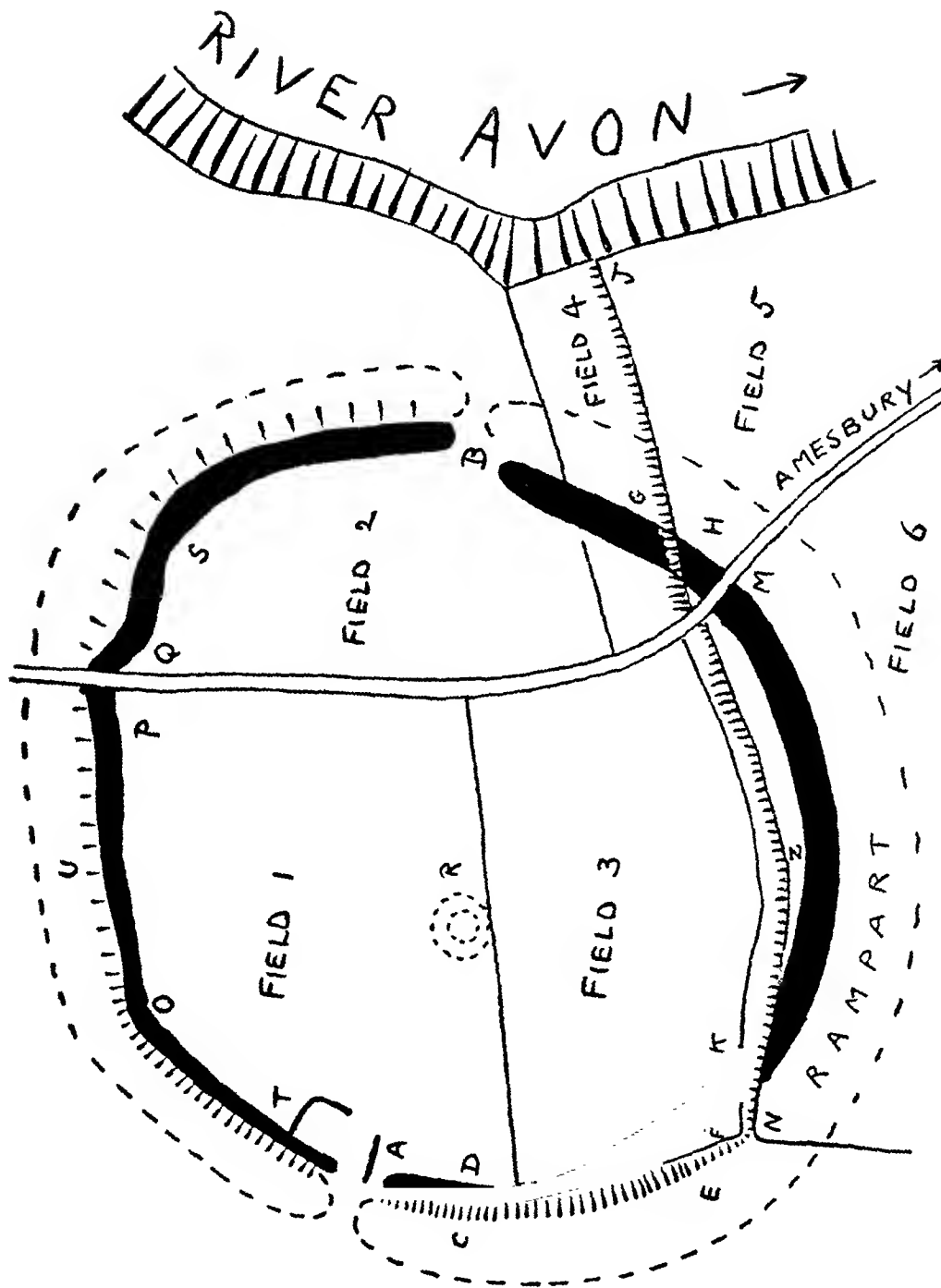


FIG. 2. CONTOURED PLAN OF DURRINGTON WALLS, FROM A BLOCK KINDLY LENT BY MR FARRER AND THE WILTSHIRE ARCHAEOLOGICAL SOCIETY, (see W.A.M. Vol. XI.)



Feet 100 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2000 Feet
 Scale 16.6 inches to mile
 © 1929
 FIG. 3. DIAGRAMMATIC RESTORATION OF DURRINGTON WALLS BASED UPON AIR-PHOTOGRAPHS

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The western portion of the area is more complicated, but also far more important. From N to the road runs a grass-grown depression. The southern scarp of this depression is continued to the river-cliff at J as a *single* scarp without any ditch. Now this depression has generally been regarded as the ditch of the 'camp' itself; and it has been concluded (not by Mr Farrer who rightly describes it) that the single scarp G-J, which is apparently a direct continuation, must also be part of the camp. But that is not so; it is merely a lynchet, positive and negative, formed by ploughing—the same process which in field 4 has levelled the rampart. Of the rampart in field 6, the remains may be seen quite clearly under certain conditions. It is most plain in dry weather when the soil is bare; then it shows up, even on the ground, as a broad white band, very slightly raised. It is also revealed by the contour-lines on Mr Farrer's plan (fig. 2). No air-photograph of it has been taken in this condition, but it is faintly visible on several (see plate I). As it approaches N the surface is covered with large blocks of chalk, of which (as we know from Mr Farrer's section E-F) the rampart was composed.

The course of the ditch along the western side of field 3 was first revealed by an air-photograph taken by Mr Keiller⁴ (plate II). It leaves the grass-grown portion at K and sweeps across the SW corner of the field towards another scarp E-C, at the foot of which it runs to A; there it ends, at a point where there must therefore have been another original entrance—the only other whose existence is at all certain. The scarp C-F consists of natural undisturbed chalk at the base, but of piled-up rubble on the top. At E this rubble is 4 feet thick, and evidence of its existence has been found elsewhere along this portion, as we shall see later. The masking of the ditch here, so that it eluded even so experienced a 'ditcher' as Mr Farrer, is probably due entirely to cultivation; for it is well known that, given a fairly steep natural escarpment, ploughing will increase the slope of that escarpment by biting slowly into it. (This process may be seen going on today at the top of any ploughed field at the foot of the downs). In the course of time the inner lip of the ditch would thus be lowered by several feet.

⁴ The ditch is revealed by the corn which in May 1924, when the photograph was taken, was fairly high. Over the silted-up ditch it had grown more luxuriantly and was therefore of a denser green colour, appearing as black on the photograph. This very luxuriance or rankness had however weakened the stalks so that, in that tempestuous year, they had been blown flat in places by the wind and rain. These fallen patches correspond to the *lighter* patches on the photograph. Here the stalks, being horizontal, reflect more light.

Durrington Walls "Sections"

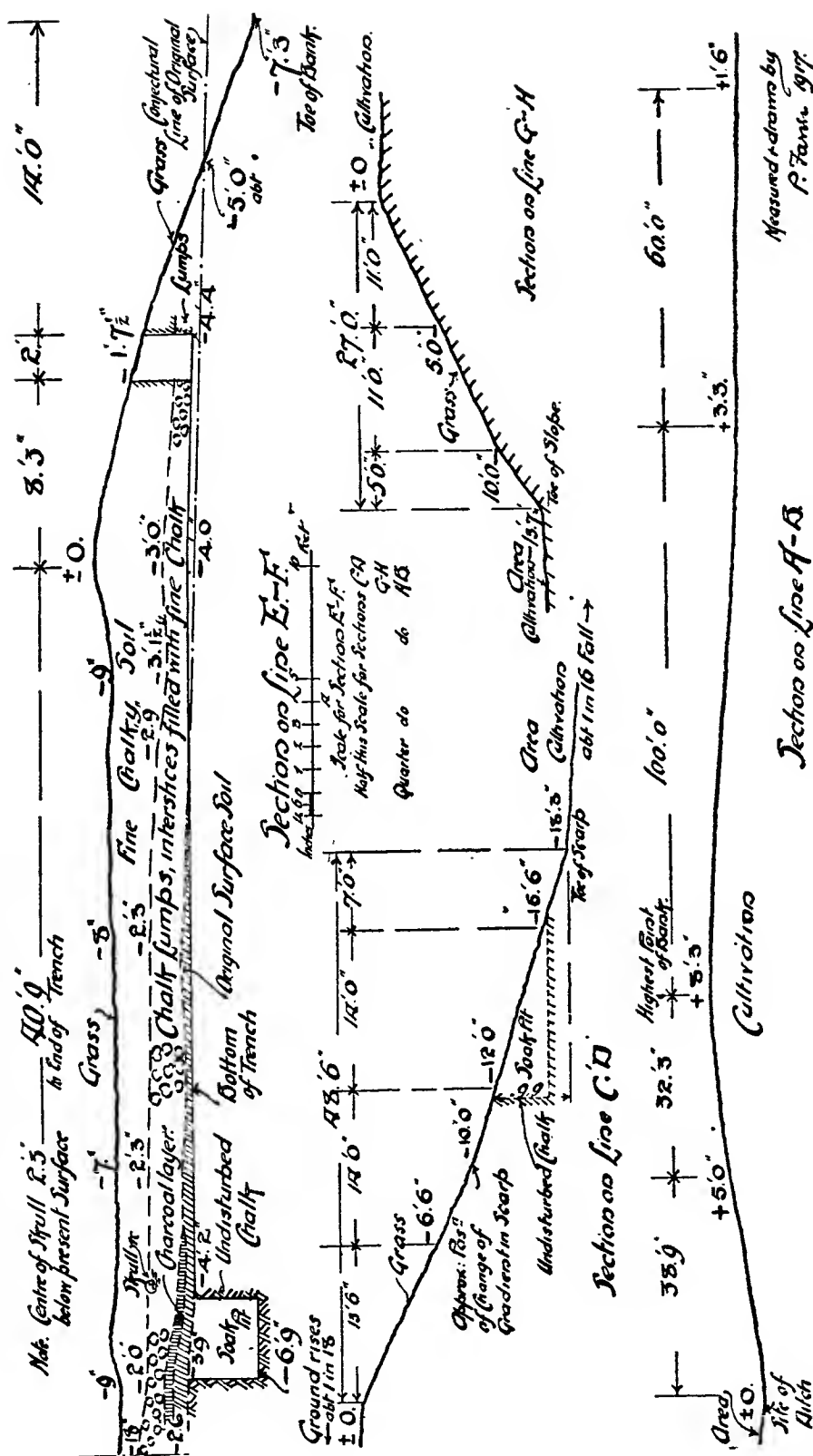


FIG. 4. SECTIONS AT DURRINGTON WALLS, FROM A BLOCK KINDLY LENT BY MR FARRER AND THE WILTSHIRE ARCHAEOLOGICAL SOCIETY, (see W.A.M. Vol. XI.)

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The evidence for an original entrance at A is provided by plate III, where the u-shaped end of the ditch can plainly be seen on the south side of the causeway. This is precisely the spot where Mr Farrer had already suggested one⁵. It is also exactly opposite the other entrance at B, a feature whose possible significance will be explained below.

Here also appeared in the corn in 1927 the dark outline of a squarish enclosure (T-A and plate III; the ground was darkened at this point by the shadow of a cloud, but the general outline is plain). The enclosure lies inside the ditch which forms its fourth side. Of its age or purpose we know nothing—it may be of any date. It does not appear on any other air-photographs, but some of those taken before were from too great an altitude for it to be visible. It may easily be located on the ground, even by a blind man, by means of the reeking dump of refuse which is accumulating here from Lark Hill.

The grassy scarp ends at O, where both bank and ditch are again entirely under plough. Between O and P the southern margin of the ditch is very plain on the plate (III). It runs right up to the road with no sign of a break, and resumes its course again immediately beyond. Neither here nor at M, where the road leaves the area on the south, is there any sign of an original gap. The road itself is probably quite modern. There are no signs of hollow tracks of the pre-metalled period, such as nearly always accompany an old-established highway, and the only route along this side of the Avon valley was probably that shown by Colt Hoare running along the edge of the cliff, past J—no more than a farm track.

Important evidence of the character of the rampart was obtained in 1917 when a drain was being laid from Lark Hill to a soak-pit located at E. Mr Farrer recorded the strata in a carefully measured sectional drawing (fig. 4 section E-F) from which it will be seen that at E there was a layer of made soil about 4 feet thick extending outwards (westwards) from the scarp for a distance of at least 56 feet. This layer consisted of an upper stratum of fine chalky soil, 3 feet deep at the east end (on the brow of the scarp), but mostly about a foot and a half thick and already beginning to thin out rapidly at the west end of the trench. Below it was a stratum of chalk lumps about a foot and a half thick. The interpretation of these two layers is quite easy. The lower layer of chalk lumps represents the rampart, spread out by long continued cultivation. (It will be remembered that large lumps of chalk still lie

⁵ Mr Farrer's other possible entrance, at K, cannot have existed, since the ditch is unbroken here (plates I and II).

DURRINGTON WALLS

on the surface of the rampart between M and N). The upper layer of fine chalky soil is a cultivation-bank or lynchet of comparatively recent formation. Mr Farrer almost says as much himself (p. 101): 'The depth may have been increased by washings from the higher land to the westward; the colour made us think that the soil must contain a very large proportion of broken down chalk'. I differ only in regarding the *whole* of the upper layer as having been thus formed.

On the top of the lower layer was found a skull and some other human bones. They appear to have belonged to a beaker-man, since they are described as being typical of the Early Bronze Age. Their presence here is difficult to account for, but the find is not of much value for dating purposes and we need not therefore discuss it further. Its best result was Mr Farrer's visit, of which it was the immediate cause.

At the west end of the trench (extending also beyond it) was a layer 4 inches thick of charcoal and flints, resting on the old surface line and containing burnt bone, at least one fragment of which was human. It was covered by the layer of chalk lumps. In the charcoal Mr Farrer found a potsherd ornamented with oblong punch-marks and identified as part of a beaker by Mrs Cunnington and Dr Blackmore. Unfortunately the significance of the charcoal layer cannot at present be explained; but the beaker sherd found in it proves that the rampart *here*, and presumably therefore the whole of Durrington Walls, was not erected before the Beaker period⁶.

Mr Farrer attaches some importance to 'a small piece of Late Celtic [Early Iron Age] pottery dug out of the scarp at Z by a friendly rabbit', (whose family still resides there; the burrow appears on plate III as a small white patch). The burrow is in the *south* side of the grassy depression; and this I suggested above might consist largely of

⁶ It may be argued that, as the rampart here has been spread by subsequent cultivation, the layer of chalk lumps which covered the charcoal might not have been strictly *in situ*. To this objection it may be replied that the charcoal layer appears near what *should* be the central part of the spread rampart; for the width of the spread rampart elsewhere, for instance between M and N, is about 100 feet, and the charcoal layer is about 50 feet from the edge of the ditch. Another bit of confirmatory evidence is the presence of the nearly intact skull above the charcoal. This could not have been found in this state if the layer of chalk below had been moved bodily by cultivation (assuming the possibility of this). Mr Farrer evidently regarded the chalk layer as intact, since he concluded, as I do also, that 'Durrington Walls must have been constructed after the date when this [potsherd] was deposited'. (p. 101).

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made 'lynchet'-soil. If so⁷—and the suggestion is supported by the presence of rabbits which, as Mr Farrer says, burrow only in chalk rubble—then the sherd has no evidential value. Mr Farrer himself admits that 'the evidence is poor'; but he is tempted to assign Durrington Walls to the Early Iron Age partly on the evidence of this potsherd, and it will not bear the weight.

We are left then with the conclusion that Durrington Walls was made during or after the Beaker period, which is generally regarded as beginning about 1800 B.C. in Britain and lasting for some two or three hundred years at most. Does the evidence of shape and of construction help us to give a closer approximation? There is one point which does, I think, and it is a new one brought out by air-photography—the presence of two, and only two, original entrances facing each other on opposite sides. This is a feature which regularly occurs in circles of a religious character, including perhaps Avebury itself. It occurs in all the circles at Thornbrough and on Hutton Moor, near Ripon, Yorkshire. It occurs at Arbour Low and the Bull Ring in Derbyshire, and at Mayborough near Penrith in Cumberland. All of these too, have the ditch inside the rampart. True, opposed entrances are found also in Iron Age camps, so that too much reliance must not be placed upon this argument; but it is not without force, nevertheless. The interior position of the ditch, and the character of the site, absolutely preclude a defensive purpose. The irregularity of the ditch is another point in favour of a pre-Iron Age date; while its low-lying position and the huge dimensions of both rampart and ditch can be matched at Avebury. Here too, as at Avebury, there are faint indications that the ditch was dug in sections; the course is not regular (like the ditches of disc-barrows or that of Woodhenge), and there are abrupt bends at o and s.

Not one of these points is convincing if taken alone, but they have great cumulative force. Unfortunately we cannot use the evidence of the beaker-man and beaker-sherd, because we do not know how to interpret it; but it is certainly suggestive that the only dateable objects obtained from below the surface should both belong to the same period. Whatever the date may be, my own opinion is that Durrington Walls is a sacred enclosure of the same age and character as Avebury and Marden.

⁷Since writing this I have again visited the site and carefully examined the soil exposed in the burrow, in company with Dr Clay. We both agreed that it consisted entirely of lynchet-soil, so far as it was visible, and the burrow extends for some depth into it. (There seems a doubt as to whether the present tenant is a rabbit or a fox).

DURRINGTON WALLS

Whether it ever had sarsen or wooden uprights we do not know, and air-photography is silent. It is not, however, impossible that ploughing might have so lowered the level of the interior as to remove all traces of holes ; or that an air-photograph has never yet been taken under exactly the right crop-conditions.

In any case excavation is urgently needed, and for once, thanks to Mr Farrer's accurate record, we know exactly where to dig. A trench run parallel to the drain E-F should explain the true character and extent of the charcoal layer, and might bring to light more pottery. It might be prolonged inwards across the ditch, to prove its existence to the sceptical. Excavation should be undertaken before the ground is buried under the Lark Hill refuse-dump ; the object being to determine the existence there of an entrance, and to find out the age of the small enclosure and its relation to the ditch. A trench through the ditch near Z would settle several doubtful points. The small concentric circles at R should not be overlooked ; they probably surround a burial-pit. The proximity of Woodhenge holds out a hope that pottery of the Woodhenge type might be found somewhere with useful associations.

It is to clear the ground for such excavations that the above account has been written.

Nicaea

by D. TALBOT RICE

NICAEA is now known to us only as a name, a somewhat illusionary place connected with synods, bishops and councils of the Church and, more usually, with the creed which takes its name from it. But in reality it is more than a name. Some fifty miles from Brusa, or a good day's journey from Constantinople with the aid of all the conveniences of modern travel, what remains of this city that was once so important stands on the borders of the lake of Isnic. To reach it several ranges of hills have to be crossed by the worst of roads, intended only for the old Turkish araba or high carriage but now gaily used by motors and lorries. But the country is delightful and the view from the various foot-hills which surround Mount Olympus is superb. These hills, together with those of a second range further to the north, hem in the lake and so afford a natural protection for the town on its eastern shore, the walls of which can just be distinguished from the hills as brown patches amongst the exuberant green of the coastal fringe.

The walls, which are extremely well preserved and are second only to those of Constantinople in interest and state of completeness, date partly from the Roman and partly from the Byzantine period (plate I). They enclose an area irregular in shape, but roughly about a mile across in each direction. There are four main gates, the two finest of which were built by the Emperor Hadrian. They are known as the Stamboul and the Lefke gates (plate II) and are directed more or less towards the cities with which they originally afforded communication. The roads still pass through them, but much above the level of the ancient streets, for the surfaces have risen with the accumulation of the mud and rubbish of ages.

Within the walls there meets the eye a sight very different from that which would have been presented at the time of one of the great oecumenical councils, when every lodging was full and when the streets were crowded with all the leading clerics of the age. The most notable of all the councils was perhaps that of 325, when the Fathers of the Church met in order to determine the true nature of God and to define

PLATE I



WALLS OF NUBIA

facing p. 60

NICAEA

the doctrine of the Trinity. Then the city must have looked like Oxford on the day of Encaenia. Today only a few tumbled houses and the relics of earlier monuments are to be found, huddled together in a small cluster at one side of the enclosed area. The rest is green with cultivation or at a certain season of the year bright red, for the main crop consists of poppies. Here and there a mound or projecting piece of masonry heralds the presence of some buried monument, a sight which fills the archaeologist with the ardour to excavate.

Nicaea was known to ancient history, but there are two diverse accounts of its origin. According to Stephen of Byzantium, a writer and historian, it was colonized by the Bottaei, who called it 'Agkhorae'. But Strabo thinks that it was less ancient and suggests that Antigone, son of Philip, founded it about the year 315 B.C. and called it Antigonia. Shortly afterwards it fell to Lysamachus, who called it Nicaea, after his wife. For some centuries after this the state of Nicaea wavered, for there were continual quarrels with Nicomedia as to which of the two should enjoy the title of metropolis, but the disputes were to some extent ended by Valens, who granted the title to Nicomedia.

But this rebuff to her pride did Nicaea little harm, for Hadrian visited the city about 120 A.D. and expended some energy in construction, both with the intent to beautify and to fortify, and while today Nicomedia (Ismid) is nothing but a Turkish town, with little to show of her former importance, Nicaea is one of the finest walled cities in Anatolia. The excellence of the Emperor's construction at this period is well attested by history, for the two great gates still stand defiant, in spite of quite a number of sieges that they have endured.

Thus in 259 the Scythians captured and ravaged the city, and the result of the ruin that they brought about is still visible today in the broken inscriptions and architectural fragments which were used in rebuilding the walls after their departure. This work of restoration was finished by Claudius, who built the south and west gates in 289.

Nicaea benefited, like most of the Byzantine world, by the prosperity of the sixth century, the age that saw the building of the cathedral of Saint Sophia at Constantinople. In fact Justinian, the greatest builder of Byzantine history, turned his energies to Nicaea, where he not only rebuilt the walls and defences but also turned the temples into churches. A ruined aqueduct which still stands is the most striking witness of his time that remains above ground.

Sometime about 620 the city was made the capital of the Obsequian theme, a large district comprising Cyzicus, Phrygia, Galatia and much

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of Bithynia, and it retained this important distinction as long as the districts concerned belonged to Byzantium. But in the eleventh century the Moslem cloud, which had long been gathering in the east, burst with full force under an ambitious leader, Suleiman, who conquered Nicaea in 1074. This was a great blow to the Christians, for the city was one of the most important strongholds against the oncoming Moslem tide, which some four centuries later was to reach Constantinople and shortly after that, even Vienna. With Nicaea fallen it seemed as though the high tide had been reached. But help was to come to the weary Christian of the East from the energetic West, and Godfrey de Bouillon, the great crusading leader, succeeded in recapturing Nicaea in spite of an energetic defence by Sultan Suleiman Kilidj-Arslan, who had repaired the walls the better to resist the attack. In 1106 the Emperor Alexis acquired the much disputed site, only to hand it over to the Seldjouks in order to pacify them while he turned his attention to the defence of his western realm. For the Normans had attacked Dalmatia. So in those days did the Christians of the West help those of the East to resist the Moslem invader. And the Crusaders advanced, lured on by the prospect of sacking the fairest and richest city in the world, Constantinople, rather than by that of rescuing the Holy Land from the hands of the Infidel. A brief lull in hostilities in 1183 enabled Andronic Comnenus, Emperor of Byzantium, to reduce Nicaea as it refused to admit his overlordship, and again the city was an outpost of the declining power of the east Christian empire.

In 1204 the Crusaders achieved their aim, for they succeeded in capturing Constantinople and in sacking it shortly afterwards. Then the importance of Nicaea as a military stronghold was finally put to the test, for Theodore Lascaris had himself crowned there as Emperor of eastern Christendom, in opposition to the Latin rulers of Constantinople, and Nicaea remained the capital city until the Franks were finally driven out, from Thrace in 1230 and from Constantinople about 1260. She remained a city of considerable importance during the early ages of the Palaeologue dynasty and for some hundred years enjoyed a respite from the continual wars and sieges that had stamped her career. But although the lake of Issic and the deserted walls of Nicaea now appear one of the most peaceful spots on earth, the career of the city has always been a difficult one and she has seen as much terror and bloodshed as any town of the Near East.

By the fourteenth century Moslem power was again on the increase, under an energetic leader, Orkhan. Broussa fell in 1326, Nicaea in

NICAEA

1332 and her old rival Nicomedia in 1337, and this time they were all to remain in Moslem hands. The Christian inhabitants, however, were allowed to retain some of their churches and certain privileges. The name of the city was changed to Isnic, and it became one of the centres of mobilization against the declining Byzantine power. It was hence enriched with two fine mosques (plate III) and at least two baths in the early Turkish period. It was only towards the end of the seventeenth century that Isnic began to fall into a final decline, in favour of her neighbours Broussa and Ismid, for apart from her geographical and military importance the city had in the days of the great Sultans an aesthetic one.

The clays which form the shores of the lake are of exceptional merit for the manufacture of pottery and the Turks, among whom pottery, both in the form of vessels and of tiles, has always been extremely popular, took full advantage of this. At Isnic was established one of the chief potteries of the Turkish Empire and many of the plates which have for long been famous in the West under the name of 'Rhodian', as well as a large quantity of the tiles that are such an essential of Turkish art, were manufactured there.

Though the potteries are the most recent of Nicaea's claims to importance, no traces of them remain today. The buildings of old Byzantine times have survived as a more striking and a more lasting memory of her importance, in spite of the fact that history records that a large number of them had already been laid low by an earthquake in the reign of Constantine Ducas (1059-67).

At the beginning of the war, in addition to the walls and the gates, there were two fine churches and a Roman theatre standing above ground to recall the ancient glory. The theatre is akin to others well known and is hence of no exceptional interest, but it is well preserved and its excavation would probably be repaid. It would be simple, for the overlying débris is not very deep and there are no recent buildings to hamper the work. More interesting, however, are the churches. Agia Sophia still stands, though roofless (plate IV), and in the apses of the side aisles some smoke-blackened frescoes attest its former magnificence. In the main apse, in the nave and in the aisles nothing remains, and there is little chance of finding anything of importance belonging to the Christian period, for during some four centuries the church did duty as a mosque. The minaret, which must have been added sometime in the fourteenth century, can be seen in the photograph. In the church of Agia Sophia was held the great council of 787, one of the

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landmarks in the history of the Christian church, which was called to discuss the question of images and icons and to determine how far reverence of them could be allowed, and here also was finally determined the great iconoclastic struggle which for some centuries divided Church and State.

But more important and more famous was the church of the Assumption of the Virgin (plate v), a domed basilica of the transition period, dating from the early part of the ninth century. Outside it was attractive; inside it was a marvel, one of the greatest monuments of Byzantine decorative art, containing as it did mosaics of the ninth and eleventh centuries and frescoes of the renaissance period of Byzantine painting. The mosaics were among the finest in existence, those of the narthex being similar in technique to the ones at Daphni, near Athens. All who have seen the Pantocrator in the dome there will realize to how high a level the art of mosaic had risen in the eleventh century and will agree that it is only in a few, mostly rather distant, churches and monasteries of the Levant that the art can really be seen at its best. After Daphni, St. Luke of Stiris and Nicaea, the mosaics of Rome, even those of Ravenna, seem of a minor skill and importance. The frescoes too, though perhaps less well known and less important, than the mosaics, were interesting as representative of a period and style of art of which, alas, too few examples remain.

Among the mosaics perhaps the most striking was the Virgin in the Apse, a fine figure, who holds the Child before her with both hands. The dome probably contained the Pantocrator, but the figure had fallen some time before the war. At its base were the four evangelists, one at each corner. St. Mark (plate vi) is chosen as being the most typical of them and as a fair illustration of the work of the period. The general drawing and shading is no less inspiring than the Apostle's fine, contemplative face.

Amongst the general havoc and ruin of the war this far off church is counted as a victim. The building, which had withstood earthquakes and sieges for some ten hundred years, had survived until 1922 except for the small portion of the dome mentioned above. Then came the exchange of populations and the age of atrocities which brought so much misery to Turkey and Greece. As one of the results of this riot of wildness, war and revolution, the church was wilfully destroyed by means of dynamite, and nothing now remains to mark its site but the bases of the great brick piers and a tumbled heap of broken bricks, blocks of fallen masonry and crumbling mortar. (Plate vii).

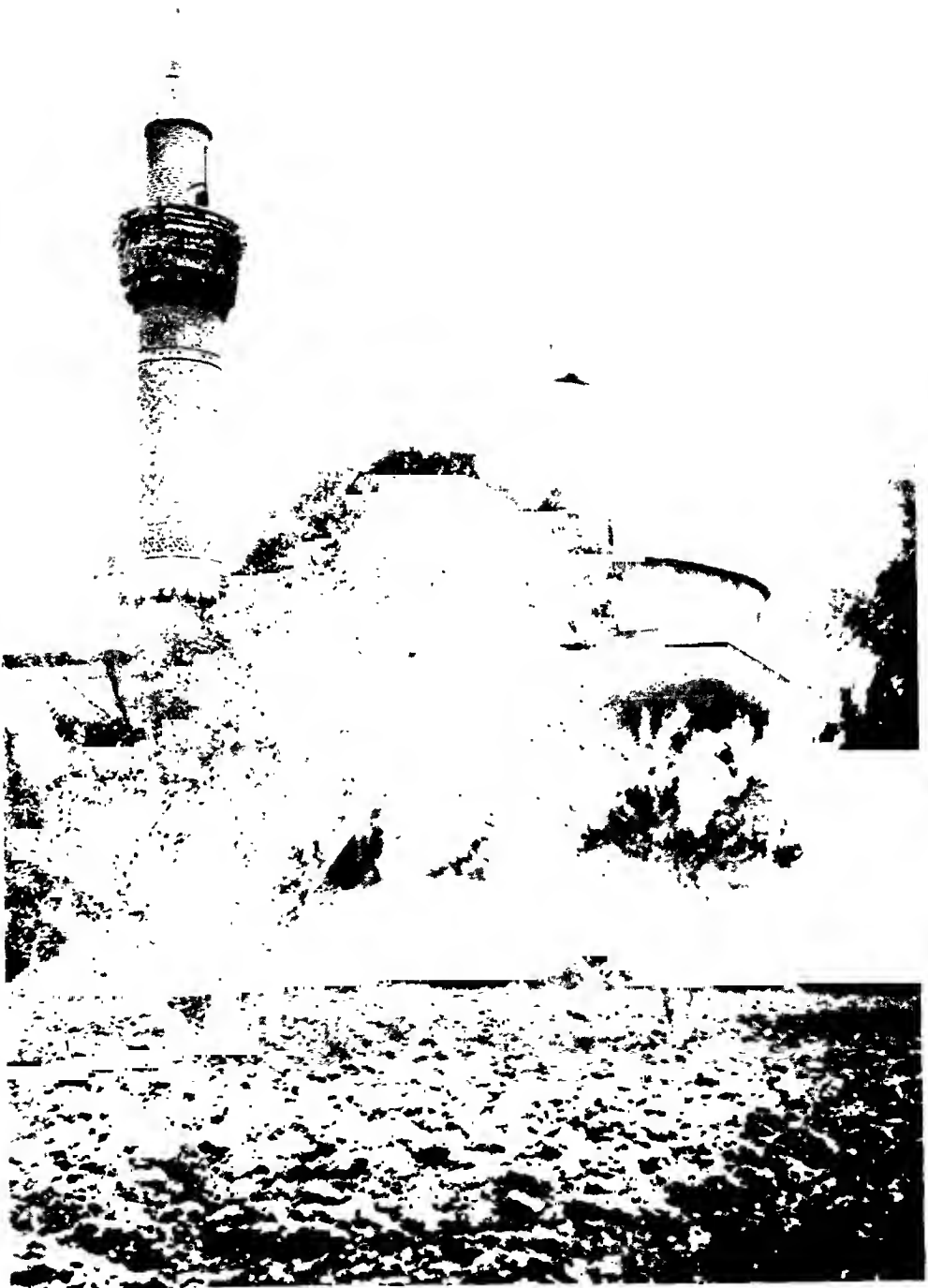
PLATE II



STAMBOUL GATE, NICAIA

facing p. 64

PLATE III



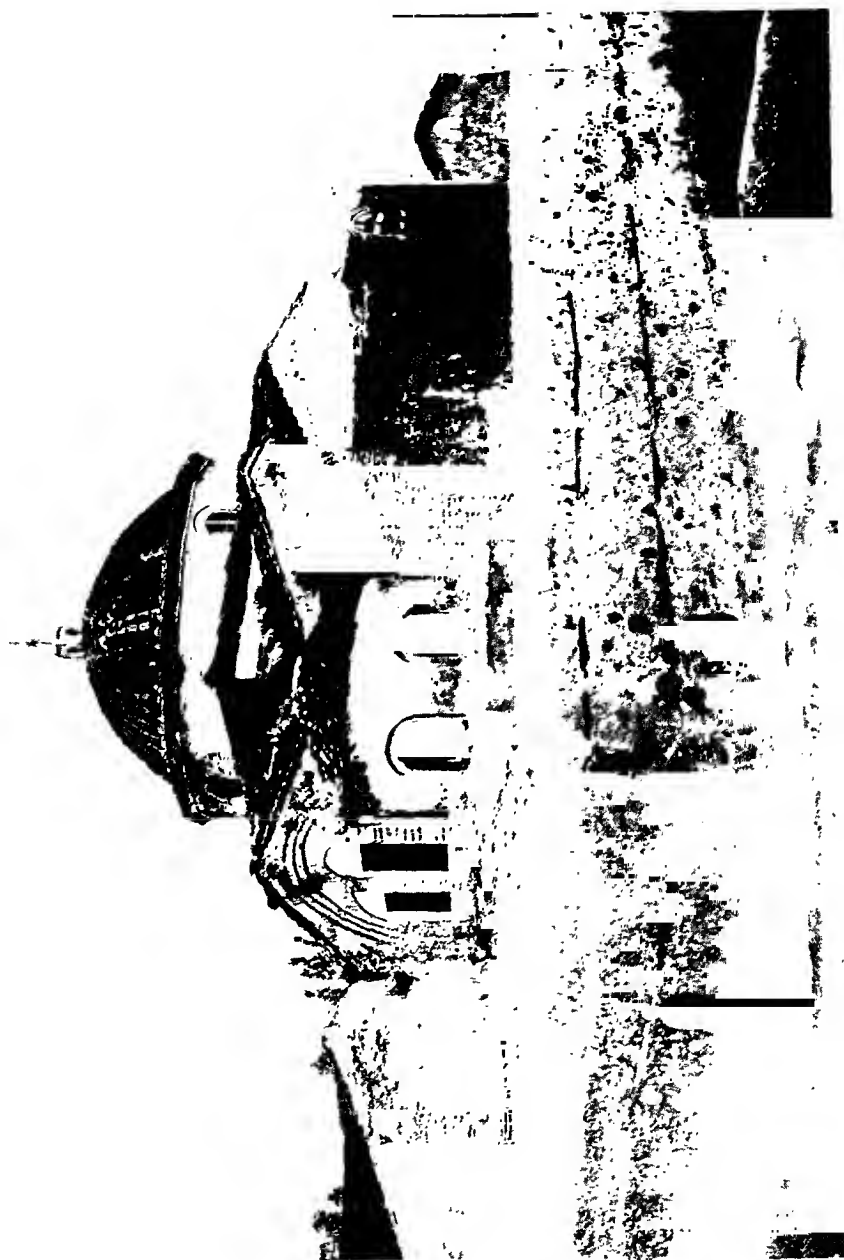
SIXTEENTH CENTURY MOSQUE, NICAIA

PLATE IV



CHURCH OF SAINT SOPHIA, NIAMEY

PLATE V



CHURCH OF THE ASSUMPTION, NICALA, AS IT WAS

PLATE VI



MOSAIC OF SAINT MARK

PLATE VII



CHURCH OF THE ASSUMPTION, NEW AVALANCH

The Earliest Christian Churches in England

by C. R. PEERS

THE earliest Christian churches of England must have been built 'while the Romans yet dwelt in Britain'. It is quite possible that some remains of them exist, unrecognized by modern eyes, and offering in their arrangements none of the conventions which have since so greatly influenced the development of the church plan. But we have at Silchester the plan of a building which has been claimed as a Christian church, probably of 4th century date, and of it we may say that if it be actually so—a matter which is not capable of definite proof,—it falls well enough into line with later churches of whose nature there can be no doubt. It is a little building with a rectangular nave flanked by side chambers or aisles and preceded by a porch. The nave ends in an apse, in this instance to the west, with transeptal chambers to north and south.

Tradition, as recorded by the Venerable Bede, preserves the record of other and more important Roman Christian churches in Britain. There was one at St. Albans 'of admirable workmanship and worthy of his martyrdom', and Christchurch, Canterbury is mentioned as existing when St. Augustine came, having been made 'of old within the city by the work of Roman believers'. There is certainly no reason why such buildings should not have survived the heathen invasions of the 5th and 6th centuries, even if we make allowance for the natural wish of the missionaries of the Christian revival to connect their work with that of their predecessors in Britain. Nor is it impossible that they had some influence on the form of the churches built by St. Augustine and his followers.

If we ask ourselves whether the Roman manner of building could have been perpetuated by the Britons, the only answer can be that there is no evidence to suggest it, and that the earliest buildings that can be connected with Celtic Christianity are of the simple rectangular form which shows no affinity with classic architecture. So that the churches of the Augustinian mission represent a new start and may be considered as a revival of the classic tradition.

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With regard to the most important of them, the Church of St. Peter and St. Paul at Canterbury (fig. 1), we have the statement of Bede that it was begun by King Ethelbert after his conversion, that is to say in the last years of the 6th century, and was not yet finished when St. Augustine died in 604. It was built as the church of a monastery and was further designed to be the burial place of Augustine himself and all the bishops of Canterbury and the kings of Kent. When it was finished, the body of Augustine, which had been buried outside the church, was laid in the

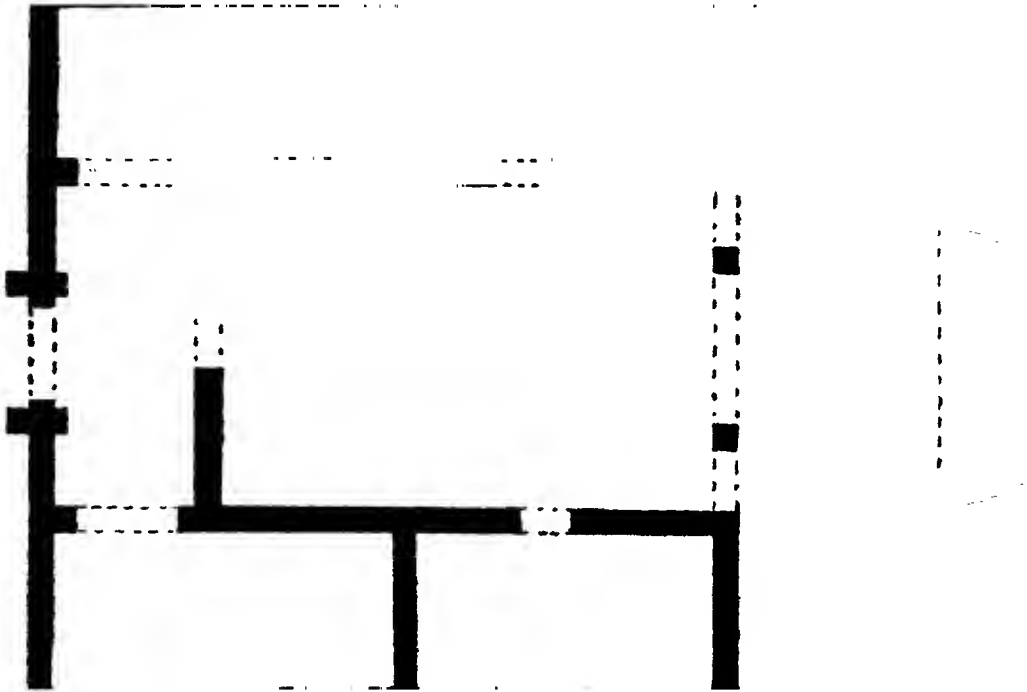


FIG. 1. SS. PETER AND PAUL, CANTERBURY. SUGGESTED ORIGINAL PLAN. $\frac{1}{4}$ " SCALE

north porticus 'in which were also buried the bodies of all the succeeding archbishops, except two only, namely Theodore and Berctwald, whose bodies were buried in the church itself because the porticus could not take any more. This porticus has almost in the midst of it an altar dedicated in honour of the blessed Pope Gregory, at which every Saturday their services are solemnly celebrated by a priest of that place'.

This church, with certain alterations and enlargements, stood until the last years of the 11th century, when it was destroyed to

EARLIEST CHRISTIAN CHURCHES IN ENGLAND

make room for the Norman church whose remains are to be seen today. A detailed account of its destruction is extant, and is so precise that when excavations were undertaken in the nave of the church, the remains of buildings which were found underneath the 11th century levels were at once recognized as belonging to St. Augustine's church, without any possibility of doubt. Here then were the remains of a church begun at the end of the 6th century and finished early in the 7th, a document of first-rate importance in itself, and for its bearing on other buildings to which early traditions attached. Its plan can be described in words practically identical with the description of the late Roman building at Silchester. It had a rectangular nave flanked by side chambers and preceded by a porch or narthex, and may be assumed to have ended eastward with an apse flanked by transepts, although all the east end of the building was removed in the middle of the 11th century to make room for the octagon built by Abbot Wulfric. It has thin walls built entirely of Roman brick and plastered on both faces. Its side walls and part of the side chambers are obliterated by the sleeper walls of the Norman church, but their position can be recovered with certainty, and in the north porticus, where the archbishops of Canterbury were buried, three tombs remain against the north wall, and can be identified as those of the archbishops Laurentius, Mellitus and Justus. The original floor, of which a good deal remains, was of plaster coloured red by an admixture of pounded brick, on a layer some ten inches thick of flints set in mortar. The scale of the building was small, the nave being some 40 feet long by 27 wide, and the side chambers 12 feet wide. The nave must have been lighted by windows high in the wall above the roofs of porch and side chambers, and between nave and apse were probably three plain semi-circular arches in a row. We may imagine painted decoration on the plastered walls, an altar with a ciborium, and low screens for the quire, in this earliest of all Benedictine churches in England.

The connexion of St. Martin's church at Canterbury (fig. 2) with Augustine's mission makes the early work still standing there of much significance. Bede's History relates that this church was given by King Ethelbert to his queen Bertha at her marriage. She was a daughter of Charibert, king of Paris, and a Christian, and brought with her to Kent a Christian bishop, Luidhard. St. Martin's church was given to them; the suggestion is that it had been in existence for some time, and Bede says that it was built of old while the Romans still occupied Britain. As it exists today it shows two periods of early work, in the

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nave and in the western part of the chancel, the latter being demonstrably the older of the two. Its walls are thin and built of Roman brick; the rectangular nave to which they belonged was 14 feet wide, but neither its east nor west end remains. In its south wall is a lintelled opening 3.6 feet wide, which gave access to a small square chamber now destroyed. To the west of this building, and overlapping it to some extent, the present nave of St. Martin's was built, at a date which may well fall within the 7th or 8th centuries. It is 38 feet by 24 feet within the walls, which are thin and built of ragstone and chalk with pairs of buttresses at the four angles and single buttresses midway in the north and south walls. Roman brick is used only in the heads of

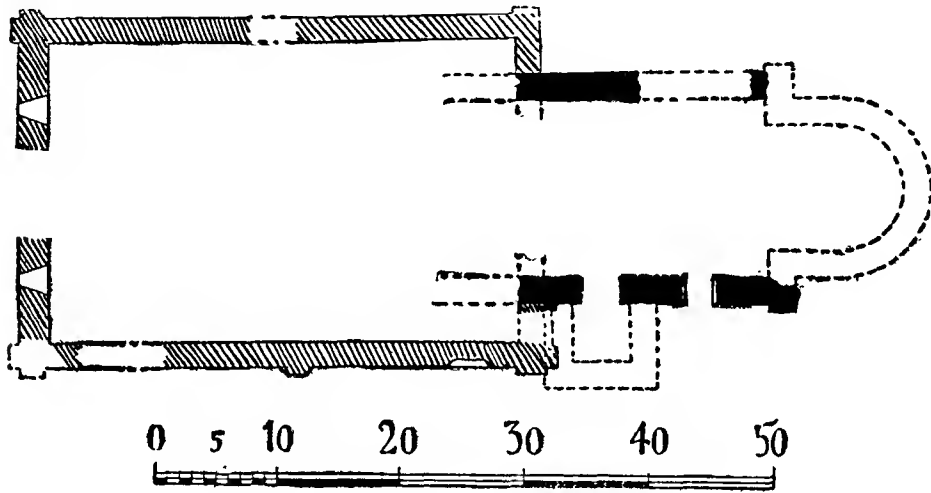


FIG. 2. ST. MARTIN'S, CANTERBURY: GROUND PLAN

the buttresses and sparingly as bonding courses in the walls. Traces of a plaster floor like that at St. Peter and St. Paul's church are recorded to have been found in the chamber south of the chancel.

Due east of St. Peter and St. Paul's church, and between it and St. Martin's, is the church of St. Pancras (fig. 3). Its details clearly show its connexion with its neighbours, but there is no early mention of it. In Thorn's Chronicle of the 14th century is a story that it was a pagan temple used by King Ethelbert, and that St. Augustine celebrated in it his first mass in Britain. This is only valuable as showing that its early date was recognized at the time when the Chronicle was written. It has thin walls of Roman brick, a rectangular nave 42 feet by 26 feet 6 inches, pairs of buttresses at the western angles and remains of a

EARLIEST CHRISTIAN CHURCHES IN ENGLAND

floor of pink plaster. Doorways midway in its north and south walls opened to chambers like that on the south side of St. Martin's, and there was a west porch whose north wall is fortunately standing, having been incorporated in a boundary wall. At the east end of the nave was a screen of four Roman columns, the middle pair carrying a brick arch

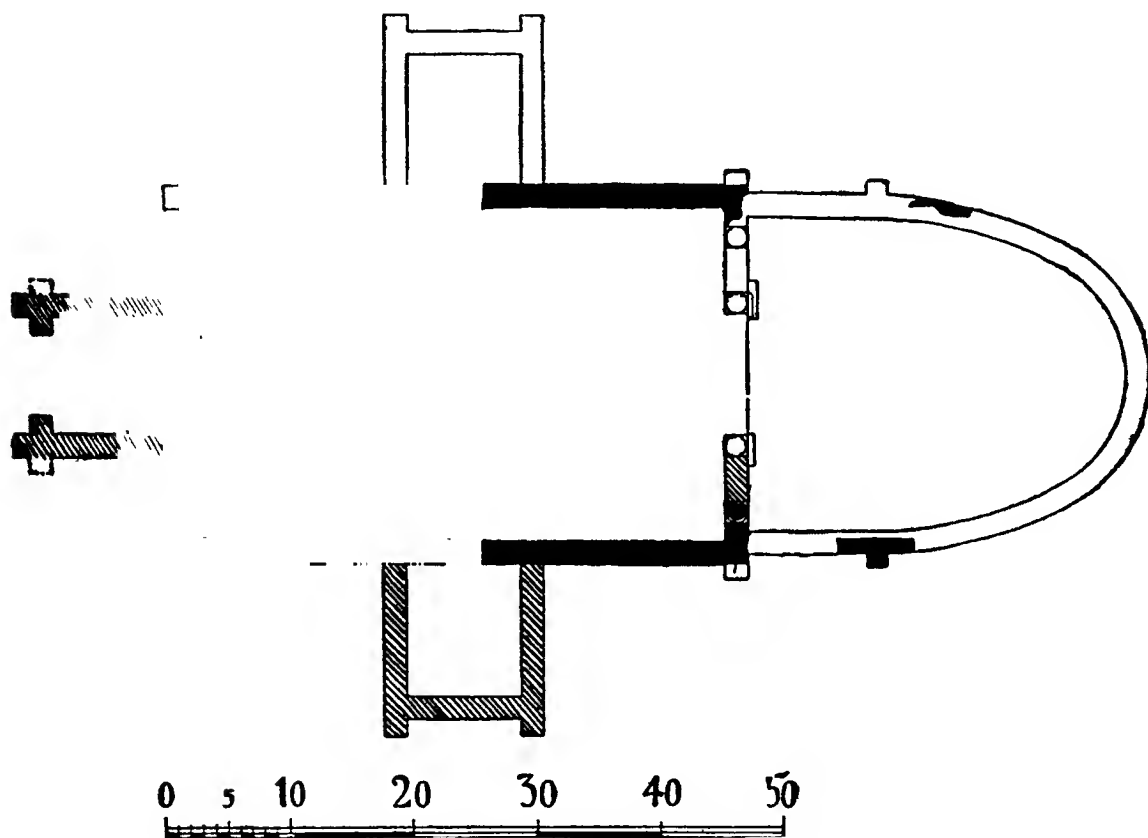


FIG. 3. ST. PANCRAS, CANTERBURY GROUND PLAN

of 9 feet span, while the side openings, which were only 4 feet wide, may have had stone lintels. The plan of the chancel is uncertain, but its width seems to have been 25 feet.

Immediately to the east of St. Peter and St. Paul's church there was built by King Edbald of Kent, about 620, the church of St. Mary. Only the base of its west wall now remains, showing that like the rest it had thin walls of Roman brick ; its nave was 22 feet 6 inches wide, and had

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a western doorway, and from the references to it in the record of St. Augustine it is clear that, like the church of St. Peter and St. Paul, it had side chambers and a western narthex.

These four Canterbury churches, then, may be used with some confidence as examples of late 6th or early 7th century plans. It would seem that St. Martin's should contain the earliest work. St. Peter and St. Paul's was begun about 598, and St. Mary's about 620. St. Pancras's shows affinities both with St. Martin's and with St. Peter and St. Paul's, and can hardly be far removed in point of time. It is set out on the same east and west bearing as the two to the west of it, an arrangement

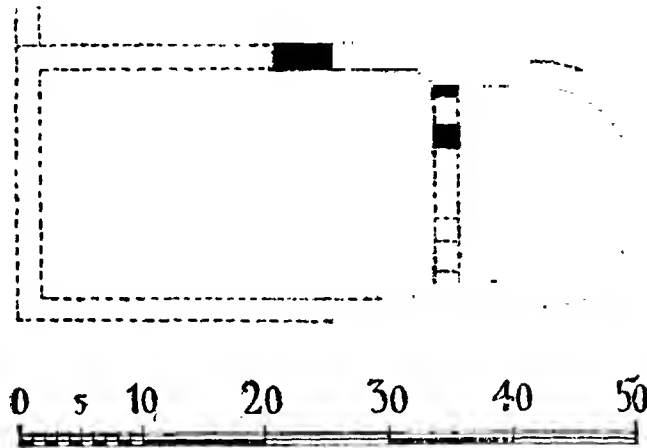
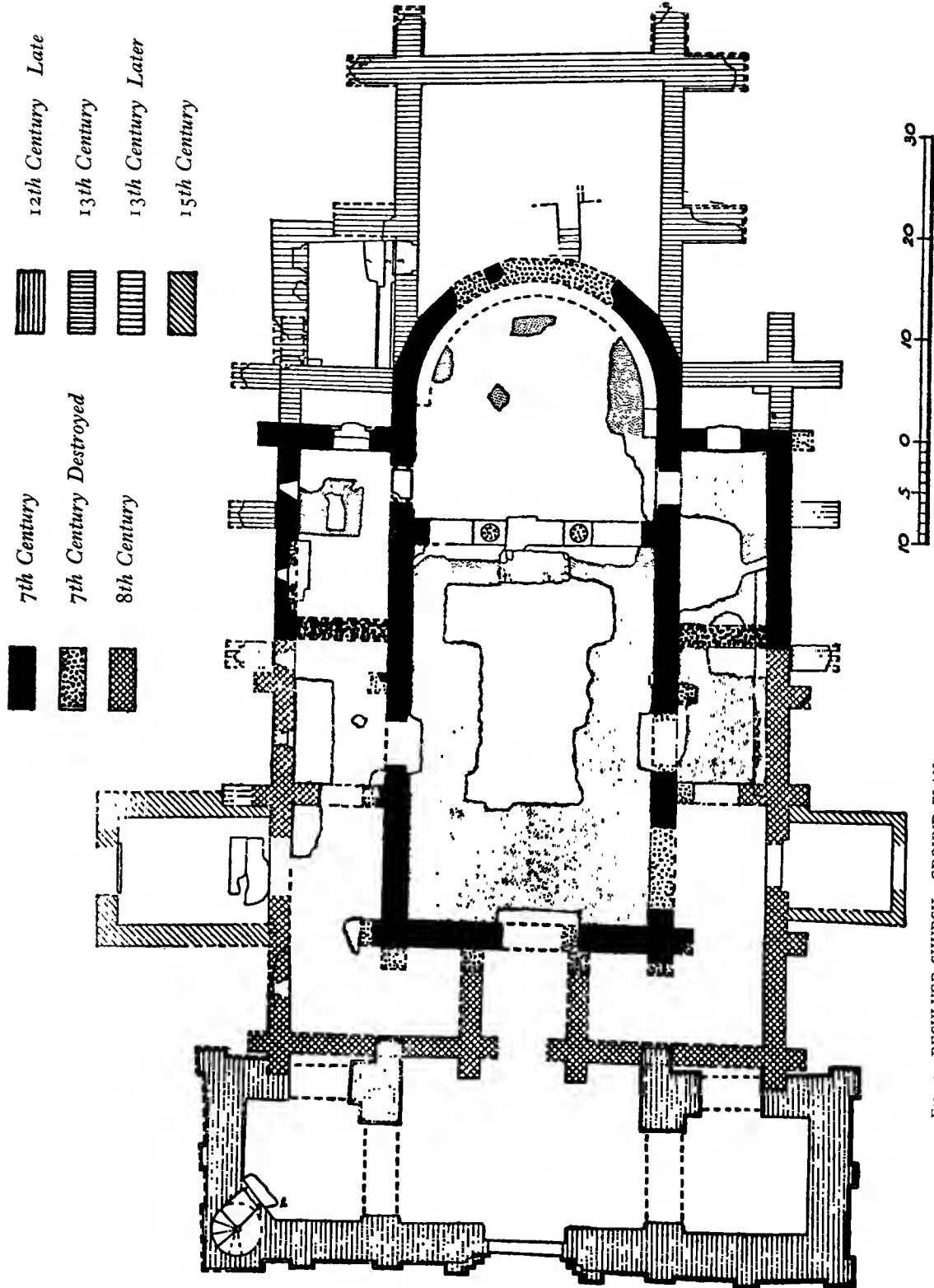


FIG. 4. ST. MARY, LYMINGE: GROUND PLAN

which occurs on other Saxon sites, and it may perhaps be argued that as St. Mary's was added to the east of St. Peter and St. Paul's, so the building of St. Pancras's follows that of St. Mary's.

If we are to look for other churches of this type, we may find an example at Lyminge (fig. 4), some ten miles south of Canterbury. Here in 633 the widowed Queen Ethelburga, sister of King Edbald of Kent, founded a monastery, and in 647 was buried in the north porticus of the church she had built there. There are in the churchyard at Lyminge, to the south of the parish church, the foundations of a small church with an eastern apse and rectangular nave, built of Roman brick, with some evidence of chambers to the north and south of the east end of the nave, and overlapping the apse. The opening between nave and apse seems to have been divided into three, and the general arrangements



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have so much in common with the Canterbury churches, that a date in the second quarter of the 7th century may be not unreasonably claimed for them.

In 669 a monastery was founded in the Roman fortress at Reculver, as the Anglo-Saxon Chronicle records. The site of the parish church at Reculver (fig. 5) has recently been cleared, with the result that the complete plan of an early church, with additions which must themselves be of early date, has been recovered. It is clearly of the same type as those already mentioned, but some 50 years later, we may suppose, than the latest of the Canterbury group. It has a nave 37 feet by 24 feet, opening to an apsidal chancel of equal width and 23 feet 6 inches deep. The apse was polygonal outside and semi-circular within. Its discovery is of particular importance, since in no other of these early churches is the apse preserved, except at Lyminge, and it is further to be noted that the polygonal outline is only developed at Reculver at or about the original ground level, so that had the foundation only remained, there would have been no reason to assume a polygonal form. The nave was divided from the chancel by a screen of three semi-circular brick arches, with stone columns which were removed at the destruction of the church about 1810 and are now to be seen in the infirmary cloister at Canterbury cathedral. North-east and south-east of the nave, and overlapping its junction with the chancel, were oblong chambers 9 feet wide by 17 feet long, with doorways to the chancel and external doorways in their eastern walls. The nave had pairs of buttresses at its western angles, and north, south and east doorways each flanked by two buttresses. The chambers had buttresses at NE and SE but none at their western angles. There were considerable remains of a floor of pink plaster in all parts of the building, and round the inner face of the apse there had been a low bench of masonry. This building was enlarged, probably at no great distance of time from its completion, by the addition of chambers at north and south, carrying on the line of the original chambers, and on the west, with a porch over the west door of the nave. The additions had plaster floors like the rest and a similar buttress system. The resemblance in plan between the nave of Reculver and that of St. Augustine's church of St. Peter and St. Paul is very striking. But the closest parallel, apart from the additions, is to be seen in the early church at Bradwell on Sea, Essex, the nave of which is in a more perfect state than any other which can claim to belong to the type with which we are dealing. St. Cedd, being on a mission in Essex in 653, is said to have built churches, among other places, at Tilbury and

EARLIEST CHRISTIAN CHURCHES IN ENGLAND

Ythanchester, the latter place being the Roman coast fortress Othonae at the mouth of the Blackwater. Across the wall of this fortress the old church of Bradwell-on-Sea (fig. 6) is built, with material taken from it. It has a nave 21 feet 6 inches wide by 49 feet long, its walls standing to their original height of 23 feet. It had a west door and porch, and possibly north and south doors. At the east was a screen of three or perhaps only two brick arches on brick piers, opening to an apsidal chancel, and there were chambers north and south of the junction of nave and chancel. There are pairs of buttresses at the western angles of the nave, and traces of buttresses in the north and south walls. The heads

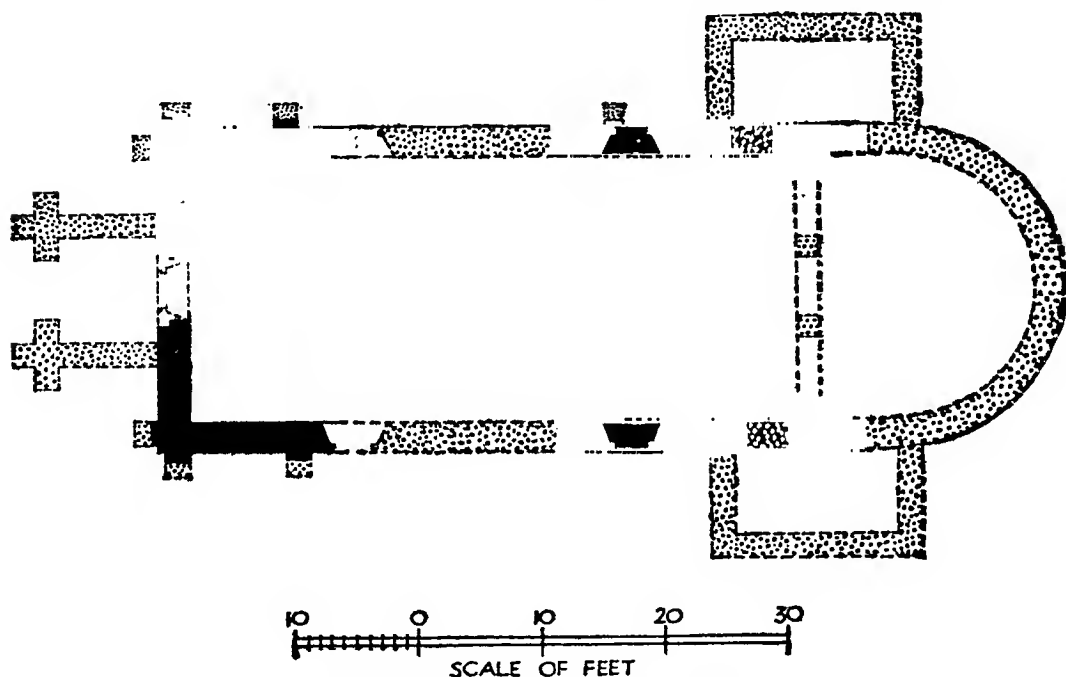


FIG. 6 BRADWELL-ON-SEA GROUND PLAN

of the buttresses are built in Roman brick, the rest of the walling in roughly squared and coursed stone, and the quoins at the western angles of the nave are in large stones, with lewis-holes in them. The Roman building from which they came must have been of some importance.

It seems fair to say that all these seven churches must have been in existence before the end of the 7th century, and the relationship between their plans is obvious. Of their architectural details there

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is, naturally, far less to be said. But in the first place it is certain that they are not the work of beginners, of unskilled men, and materials and workmanship are excellent. We are, however, at a loss for detail in nearly every case. There is the notable exception of the stone columns from Reculver, now at Canterbury. With the capitals and bases they stand nearly 15 feet high : the bases are of Ionic profile, a little clumsy in the working, and ornamented with key and cable patterns as no classic base would be. The capitals are definitely awkward ; the designer's device for changing from the circular plan to the square showing a lack of experience, while the neck-moulding is too heavy. But the work is anything but barbarous. There are two Corinthian capitals at St. Augustine's, Canterbury, found in one of the boundary walls and probably belonging to one of the early churches, which in spite of their more ambitious design are far nearer the barbaric. For the rest it can only be noted that the original windows at Reculver, and those of the later additions, were narrow, with brick quoins and a single splay through the wall. They probably had round heads, but none has been preserved. At Bradwell the west window of the nave is round-headed and of a fair width : the side windows, set high in the wall, had wooden lintels, and were square-headed, being presumably filled in with pierced boards, such as were called *transennae*. The plaster floors, coloured with pounded brick, seem characteristic, and in the church lately discovered at Glastonbury and thought to be the work of King Ina in the opening years of the 8th century, a similar floor has been exposed. Speaking generally it may be said that the builders of these churches drew on Roman materials for their constructions : the oldest of them are built entirely of Roman brick, the later of stone with brick for dressings and coursing. This would be only a question of supply ; we have no reason to suppose that the Saxon builders made bricks, and when materials from Roman buildings became scarce, stone was used to supply deficiencies. At St. Pancras's church the remaining column base is Roman work re-used. At Reculver the builders have had to make their own capitals and bases, in default of Roman material. But these churches contain the germ of the English pre-Conquest school of building, and as such are worthy of careful study, especially as they have one merit which is so often lacking in later Saxon buildings, that their approximate dates are hardly in doubt.

Stonehenge

by R. S. NEWALL

JOHN WEBB, in his preface to Inigo Jones's posthumously published *Stonehenge*, in 1655 says: 'This discourse of Stonehenge is moulded off and cast into a rude Form, from some few indigested notes after the late judicious Architect, the Vitruvius of his Age, Inigo Jones'. Upon these notes, Webb undoubtedly dined not wisely but too well and I trust I shall not be accused of doing the same with Colonel Hawley's many and well digested notes. I have one advantage over Webb in that I have seen Stonehenge, and I very much doubt whether he had.

In describing the stones, I shall begin at the centre and work outwards, taking as centre the point where a line drawn from stone 91 just inside the bank to stone 93, and a line from hole 92 in the middle of the supposed barrow to hole 94 in a similar barrow in the NW quadrant, cut each other and the axis of Stonehenge. It is from this point as centre that all the black circles on the plan are drawn. The axis is a line through the centre, which divides the stones and earthworks into two equal parts.

The stones already mentioned are as follows. No. 91 is a rough, somewhat pointed stone, now leaning outwards. No. 93 is much smaller and is dressed on all four sides. Both of them lie 140 feet from the centre. Hole 92 was dug into by Hoare; he found nothing there, but mentions finding a cremation burial in hole 94. It is, however, more probable that he dug out 'Aubrey' hole 46, as will be shown later.

These four points could not have been exactly fixed after Stonehenge was standing, but their intimate connexion with the plan of the monument suggests that they were fixed just before its erection. The only other stone circle that has outlying stones, other than an avenue, is Turusachan, Callernish, but there the stones are in a different position as regards the avenue and the north.

The centre of the circle having been defined, the next stone to be considered is no. 80 (red, stippled), which is 16 feet long by 3 feet 4 inches wide and 1 foot 9 inches thick, and is at present pressed into the ground

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by the weight of stones 55 and 156, which have fallen on the top of it. This is the only piece of micaceous sandstone at Stonehenge and fragments of it are rare. Its original position is uncertain, but it is more than probable that it does not now stand in it. The northern end is more or less pointed, the southern has been dressed flat. In nearly every case where the base of a stone is exposed, it is found to be naturally pointed and left undressed. A pointed base would be helpful in raising a stone to the perpendicular, for it could be inclined one way or another more easily than if the base were flat. To flatten a pointed base would also reduce the height of the stone, and the intention of the builders seems to have been to get the greatest possible height out of the material. If, however, stone 80 did stand upright in a position on the axis, it must have fallen in such a way that the middle of it lies directly over its hole ; and if, on the other hand, it stood in a hole somewhere near the present position of the base, that is, off the axis, one would expect to find its pair.

Outside stone 80 lies the horse-shoe of blue stones (blue), nos. 61 to 72, some of which stand on the arc of a circle with a radius of 19 feet. They are all of spotted dolerite, and increase in height from no. 61, which is now 5 feet 6 inches but must have been a little more originally, to over 8 feet where they stand near the axis. Stone 67, which stands on the axis, would seem to render useless any viewpoint behind it. All these stones are very carefully dressed and taper gradually from the ground to the flat top. No. 68 differs from the others in having a shallow vertical groove on its northern side, but this is due to the stone having been dressed by cutting a groove and then pounding down the ridges, as is shown on the outside face of no. 59. It has been suggested that this horse-shoe was originally an oval, but there do not seem to be enough holes on the northeast side.

The five big trilithons nos. 51-60 (pink) are the most impressive stones here, but, though large, they are not nearly so large as some stones moved by prehistoric men. The broken menhir at the end of the long barrow, called Er-Grah, at Locmariaquer in Brittany has a total length of 67 feet, whereas the largest stone at Stonehenge, no. 56, is only 29 feet 8 inches, of which 8 feet are below ground. The trilithons increase in height towards the centre: 51 and 52 are 16 feet 6 inches in height, 53 and 54 (plate 1) are 17 feet 9 inches, and 55 and 56 are 22 feet. The last mentioned stones were probably the first to be erected. When no. 56 was raised upright from a leaning position in 1901, it was discovered that it had been run down an incline cut in

PLATE I



FRILITHON STONES 53 AND 54. STONEHENGE

facing p. 76

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the chalk to the bottom of its hole from the inside of the circle, thus proving that the blue stones were erected afterwards, for they stand over this incline and it would be impossible to erect the big sarsens once they were standing there. Another point of interest in connexion with these two stones is, that although no. 56 has 8 feet below ground, its fellow (55) can only have had about 4 feet covered. The greatest height was wanted here, and in order to get that height out of no. 55, which is nearly 4 feet shorter than no. 56, the part below ground level was not dressed but was left nearly twice as thick as the upper portion, in order to give it a broad, firm base.

The lintels of these trilithons are very carefully cut to a curve on both the inner and the outer sides, and they are about 6 inches wider on their upper surface than on their lower, so that they should not give a tapering effect when seen from below. Their average measurements are 16 feet long, $4\frac{1}{2}$ to 4 feet wide and $3\frac{1}{2}$ feet thick. The very even height at the top of each pair of uprights is noticeable. It would be impossible to place pairs of stones so exactly, however carefully their length and the depth of the holes were measured, because the crushing effect of their weight on the chalk would be an unknown factor. In practice, however, this difficulty could easily be met by erecting the stones and letting them settle in their holes and then seeing how much had to be cut off the top and how much had to be left for the tenons which fit into the mortise holes at each end of the lintel. This use of mortise and tenon for jointing stone seems to be unique, being a method usually only used for jointing wood. It can have had little holding power here, for in the cases where it can be examined *in situ*, as for instance on stone 52, there is a space between the joints large enough for a jackdaw's nest.

Outside the big trilithons is the circle of blue stones, 31 to 49 and 150, with a radius of 39 feet. The stones vary in height, shape and material; besides 16 spotted dolerites there are four rhyolites and four volcanic ash stumps broken off below ground level. Although this is the least accurately placed of the circles, it must have been pegged out on the ground when the rest of the structure was planned, for no circle could be drawn once the five trilithons were standing. The inaccuracy can partly be accounted for by the fact that the stones were erected after all the sarsens were in position. That this was the order of erection is proved by the fact that no chips of the blue stones have been found in any of the holes of the sarsens which have been excavated.

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It is the blue stones which give us some little evidence as to when Stonehenge was built. Dr Thomas has shown (*Antiquaries Journal*, III, 239) that these stones came originally from the Prescelly Hills in Pembrokeshire. It is almost inconceivable that rough undressed stones should have been brought a distance of 145 miles in a straight line overland, or round the coast by water and up the Salisbury Avon, when plenty of stone of other kinds could be obtained quite close at hand. The problem is partly solved by stone 150. This now lies pointing inwards, but if it were set upright on its present NE end it would fit exactly into the circle of blue stones, and there can be little doubt that this was its original position. It is the only one of the blue stones known to have mortise holes in it, and when it stood upright it was so placed that these holes were on the outside. Now a universal feature of Stonehenge is that the best face of a stone is always on the inside. Therefore, it may be safely said that some form of megalithic monument composed of Prescelly blue stones and having at least one trilithon was brought from some place unknown and incorporated into Stonehenge after the sarsens had been erected, and that stone 150, originally part of a trilithon, was then used as one of the uprights of the circle of blue stones. The stones of this circle are a rather uneven lot. Nos. 49 and 31, on either side of the axis, are intentionally a little nearer in than the others. Nos. 46 and 48 are rhyolites and have 38 and 40, the only other rhyolites, almost diametrically opposite them, which is curious. In fact, most of the stones in this circle have a stone diametrically opposite them, which shows that the circle is more complete than one would imagine from looking at it, for it is not likely that in every case pairs of diametrically opposed stones would have been destroyed. Another interesting point is that at present there is no evidence of any of the stones in this circle having stood at the four cardinal points of the compass.

Blue stone fragments have been found in other parts of Wiltshire, the two best instances being at Boles Barrow (a long barrow at Heytesbury) and in a round barrow near Stonehenge. William Cunnington, writing to H. P. Wyndham in 1801 (*Wilts. Archaeological Mag.* XLII, 432), after describing the big sarsen stones weighing from 28 to 200 lbs. each and forming a ridge down the middle of Boles Barrow, adds a note: 'Since writing the above I discover among them the Blue hard Stone also, ye same to some of the upright Stones in ye inner Circle at Stonehenge'. This definitely proves the presence of blue stones in Neolithic times in Wiltshire, but not necessarily at Stonehenge.

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It is more likely that the blue stone in Boles Barrow is connected with the megalithic monument of which stone 150 in Stonehenge was originally a part. The second instance occurs in Hoare's *Ancient Wilts*, I, 127, though the admissibility of this as evidence of blue stones occurring in a round barrow has been disputed. The barrow in question was 76 feet in diameter and 3 feet high. Hoare suggests that it had been opened earlier by Stukeley, and goes on to say: 'We observed a heap of white soil which having removed we came to the primary interment of burned bones within a fine circular cist and found a spearhead of brass (bronze dagger) in fine preservation and a pin of the same metal (bronze awl). It is somewhat singular that these burned bones, a more than usual quantity, should have been unmolested in a barrow where there were a hundred rabbit holes. On removing the earth from the cist, we found a large piece of one of the blue stones of Stonehenge. In opening a fine bell-shaped barrow NE of Stonehenge, we also found one or two pieces of the chippings of these stones'. It is evident that Hoare thought that the blue stone chips were contemporary with the primary interment, and that Stonehenge must, therefore, have been built before this barrow.

The last circle of stones is composed of thirty dressed sarsens, nos. 1 to 30 (pink), with a continuous ring of sarsen lintels, a unique feature in stone circles. Each upright sarsen has at the top two tenons to fit into the mortise holes at the end of each lintel where they meet each other on the top of the upright. The levelling of the tops of sarsen uprights was mentioned in connexion with the five trilithons, and there is further evidence for it here. A very large number of hammerstone chips, mostly flint, were found just below ground level around the inside faces of stones 29, 30, 1 and 2. These splinters and chips were evidently knocked off the hammerstones in reducing the height of the sarsens and cutting the tenons. They were found on the inside because the lintels must of necessity have been put up from the outside of the circle, probably by rolling them up an inclined plane of earth and wood, and when this was removed the hammerstone chips which had fallen on the outside would have been removed also. The lintels are further secured by their ends being toggle—or fishtail—jointed to each other. They are cut out on the arc of a circle to fit the circle of radius 49 feet on which the uprights stand. One of the lintels, that resting on stones 1 and 30, was thicker than the others and in order to make it level at the top with the others the seating at each end was reduced by a few inches.

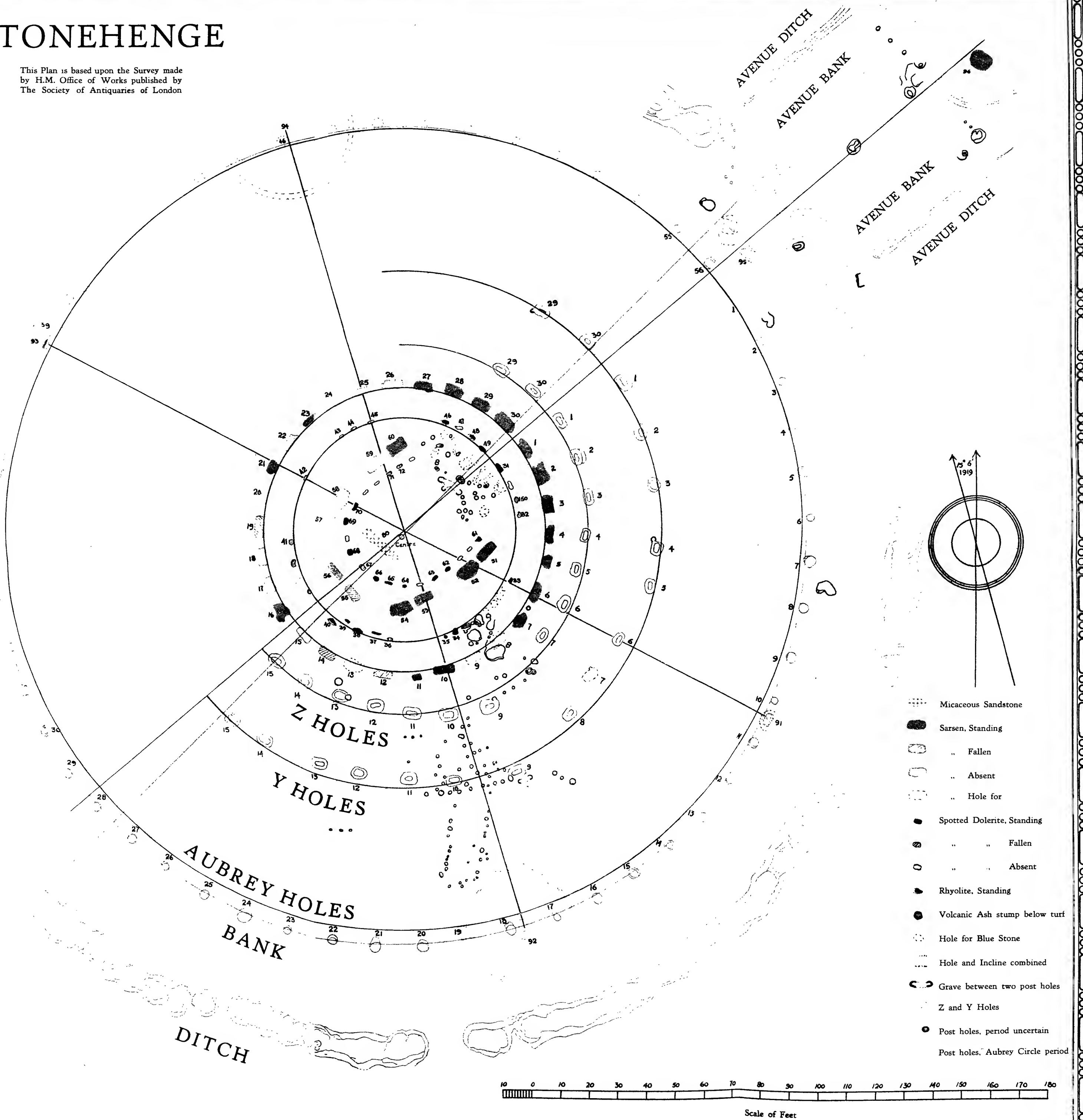
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The uprights of this circle have been proved by excavation to have been erected from the outside by sliding them down an inclined plane to the bottom of the hole and then pulling or levering them upright. Once they were upright, there seems to have been feverish haste to keep them so by throwing packing blocks into the space between the stone and the chalk walls of the hole. In some cases, large sarsen mauls were used for this purpose, also rough sarsen blocks, pieces of Chilmark limestone, and, more rarely, blocks of green sandstone. The last two are interesting as showing that stone was obtainable nearer than the sarsens. Chilmark or Teffont, the nearest sources of supply for this material, are only eight miles away, whereas the Marlborough Downs, the presumed source of supply of the sarsens, are about eighteen miles from Stonehenge.

The z and y circles of holes (green) must now be considered, and may be taken together. These holes are oblong in shape with sides and ends sloping outwards; taking z3 as a fair example they measure 33 inches deep, 70 inches long and 56 inches wide at the top, and 42 inches long and 28 inches wide at the bottom. The filling is of a redder shade than the earth in any of the other holes here. A glance at the plan will show that these circles differ from all the others in their irregularity, and this shows that they were not pegged or marked from the common centre, which would be an impossibility once the stones were standing. They are moderately exact in their radial position, the radius being 64 feet for z1 and 90 feet for y1, but there is a tendency to pairing on the south-west, and there seems to be a break in the continuity at y8. Evidence of their lateness is given by the fact that they are the only holes which contain fragments of the blue stone on the bottom; there is no z8, stone 8 having evidently fallen before they were dug. Another proof that they were dug after the erection of the sarsen circle is afforded by the fact that the filled-up incline to stone 7 was cut into by hole z7. Apparently the only case in which anything had been intentionally buried in one of these holes was in y30, where five red-deer antlers were found carefully laid on the bottom. Though no date or period can be deduced from these, it may be noted that they were rather less robust than those found in the bottom of the ditch. Fragments of pottery of every kind from the beaker onwards were found in these holes, but in no stratified layers, and it can be safely said that they had fallen in with the earth, seeing that there was similar pottery all round the area in which they were dug. It is only in an instance like y11, where 104 pieces of Early Iron Age pottery were found on an

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This Plan is based upon the Survey made
by H.M. Office of Works published by
The Society of Antiquaries of London



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ashy layer or hearth at 15 inches below the ground level, or z4 where 52 pieces of a bead-rim pot were found at 20 inches down, that any suggestion can be made as to date ; and one is inclined to think that if Druids ever had any connexion with Stonehenge it was here that they may have put up some addition, to augment or bolster up their hocus-pocus at a monument whose use, in their time, would long have been forgotten.

The 'Aubrey' holes, bank and ditch (orange) may be taken together. It is unfortunate that the crest of the bank is not shown on the plan, but it will be found to be just outside the ditch of the 'barrow' 92, or 161 feet from the 'Aubrey' holes centre. The bank was, of course, discontinued at the main causeway entrance and was probably not its full height at either of the two other causeways, to the north and south ; here what bank there was would soon have been worn away by modern cart-tracks. It is also unfortunate that hardly any excavations were made in the bank. Two were begun, and soft ground was found outside 'Aubrey' holes 2 and 7, but owing to the lateness of the season there was not time to finish them.

The extreme irregularity of the ditch is a striking feature. It appears to have been made by digging round holes (as outside 'Aubrey' holes 24, 25, 26) and afterwards cutting away the divisions between them. A large number (about eighty) of deer antlers, mostly picks, were found lying on or near the bottom, as though left there at the end of a day's work, and there is reason to believe that this ditch was never finished and left open. In fact, there must always have been enough loose chalk rubble lying in it to hide the picks, or one would suppose that they would have been taken away and used for some other purpose. There was no evidence of occupation at the bottom, only four very small pieces of pottery being found there. Flint flakes were numerous, many made no doubt in cutting through natural layers of flint in the chalk, or in whittling a flint in an idle moment. Two small Cissbury-type celts were found, but implements were extremely rare, unless the chipped lumps or rough cores can be called implements. The whole ditch resembled a quarry whence chalk blocks were obtained for building the bank. Rather more than two thirds of the ditch was filled with the chalk rubble containing the objects mentioned above, and part no doubt had been frosted in from the sides and from the bank. The blue stone chips were rarely found more than a few inches down in this rubble. On top of this was found pottery of all dates from the beaker to the present day, a large sarsen maul like those used for dressing stone, a barbed

and tanged flint arrowhead lying next one of iron and blue stone axes ; in fact a similar collection to that found amongst the stones.

To return to the 'Aubrey' holes ;—they are so called because John Aubrey, F.R.S., in his plan of 1666* (which seems mainly based on Inigo Jones's plan) shows holes in this position. It is curious that some of the holes were visible as small depressions at that date whereas there is no surface evidence of them today. It may have been a dry summer when he saw them, or the turf may have been eaten off by sheep. The holes are circular, their inner edges being more sloping than the outer, and they vary in size from a depth of 24 inches and a diameter of 30 inches to a depth of 41 inches and a diameter of 45 inches. If, as seems probable, they are spaced out evenly on the circle, there should be 56 of them, of which 32 have been excavated. If a diameter (orange) is drawn through the space between nos. 55 and 56 and through that between nos. 27 and 28, and produced north-eastwards, it will be found to correspond with the middle of the main causeway entrance of Stonehenge more closely than the axis does. Also, if a circle is drawn (orange) with its centre on this diameter, $3\frac{1}{2}$ feet south-west from the centre of Stonehenge, with a radius of 144 feet, it will be found to fit the 'Aubrey' holes better than the circle (black) from the Stonehenge centre, the greatest difference being 5 feet.

The ditch of the 'barrow' 92 is not only cut in the bank of Stonehenge but cuts through 'Aubrey' hole 19, and the 'barrow' itself covers holes 17 and 18, showing that it is later than the 'Aubrey' holes and the bank. Its intimate connexion with the stones has already been shown.

The exactness of the coincidence of the 'Aubrey' holes with the orange circle would be impossible unless the circle had been described from the 'Aubrey' centre by the peg-and-string method before the stones were standing. If any reliance can be placed in the plotting of those holes not yet excavated, stone 93 would stand almost in 'Aubrey' hole 39, and will require the most careful sectional excavation at a future date. In the same way, 'barrow' 94 should be found to cover three or more 'Aubrey' holes. It will be remembered that Hoare, digging here early in the 19th century, says that he found a cremation burial in the middle of this 'barrow', but it is more than likely that he dug into 'Aubrey' hole 46.

* In his *Monumenta Britannica* (manuscript, unpublished, in the Bodleian Library, Oxford).

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As to the contents and use of the 'Aubrey' holes, twenty-three out of the thirty-two excavated contained a cremation or part of a cremation. In very few instances was the cremation in a compact mass, but in nearly every case it seems to have been placed on the side of the hole near the top and to have dribbled down to the bottom; in no case did blue stone or sarsen chips go down to the bottom, though sometimes they are deep in the hole. These points, together with the lower filling of the ditch and the position of the 'Aubrey' holes, are very strong evidence for assuming that the holes, the ditch and, necessarily, the bank are earlier than Stonehenge.

In order to determine the purpose of the holes, let us take a typical example, no. 9. The depth of this hole is 41 inches. Down to a level of 28 inches below the turf there were found 32 sarsen chips, 56 quartzite chips from hammerstones, and 51 blue stone chips. Signs of cremation were met at 10 inches below the turf, and wood-ash was encountered at 24 inches down on the inner side, continuing in a downward slope to the opposite side and the bottom. The cremation was diffused among the wood-ash. This was a large hole with more or less vertical sides; it was filled with earthy chalk rubble, there was white chalk rubble on the inner side under the wood-ash, and a certain amount, as is usual, on the opposite side. A peculiarity was the depth to which the brown earth had penetrated and the finding of stone chips of all sorts at a greater depth than usual.

If these holes had been dug as cists for cremation burials, the burnt bones would not have been in this scattered state; if they had contained stones one might reasonably expect a few packing blocks; also, it might be easy to get a stone into a hole 41 inches deep and 45 inches across, but to get it out would entail the clearing of all the material between it and the side of the hole, and perhaps cutting down one side of the hole, which would scatter the cremation still more, supposing that it had been placed at the side of the hole against the stone. If, however, a wooden post stood there, its gradual decay would cause the cremation to dribble down, and stones and earth at the top would fall in and generally reproduce the description of the hole given above.

The causeway must of necessity be as old as the ditch, and undoubtedly the post-holes (orange) on it formed a barrier to block the entrance. It has been shown that the causeway corresponds better with the 'Aubrey' circle diameter than with the axis of Stonehenge, but the Axis is central to the avenue ditches (pink) and the avenue banks, so

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that the avenue appears to belong to Stonehenge and not to the 'Aubrey' circle.

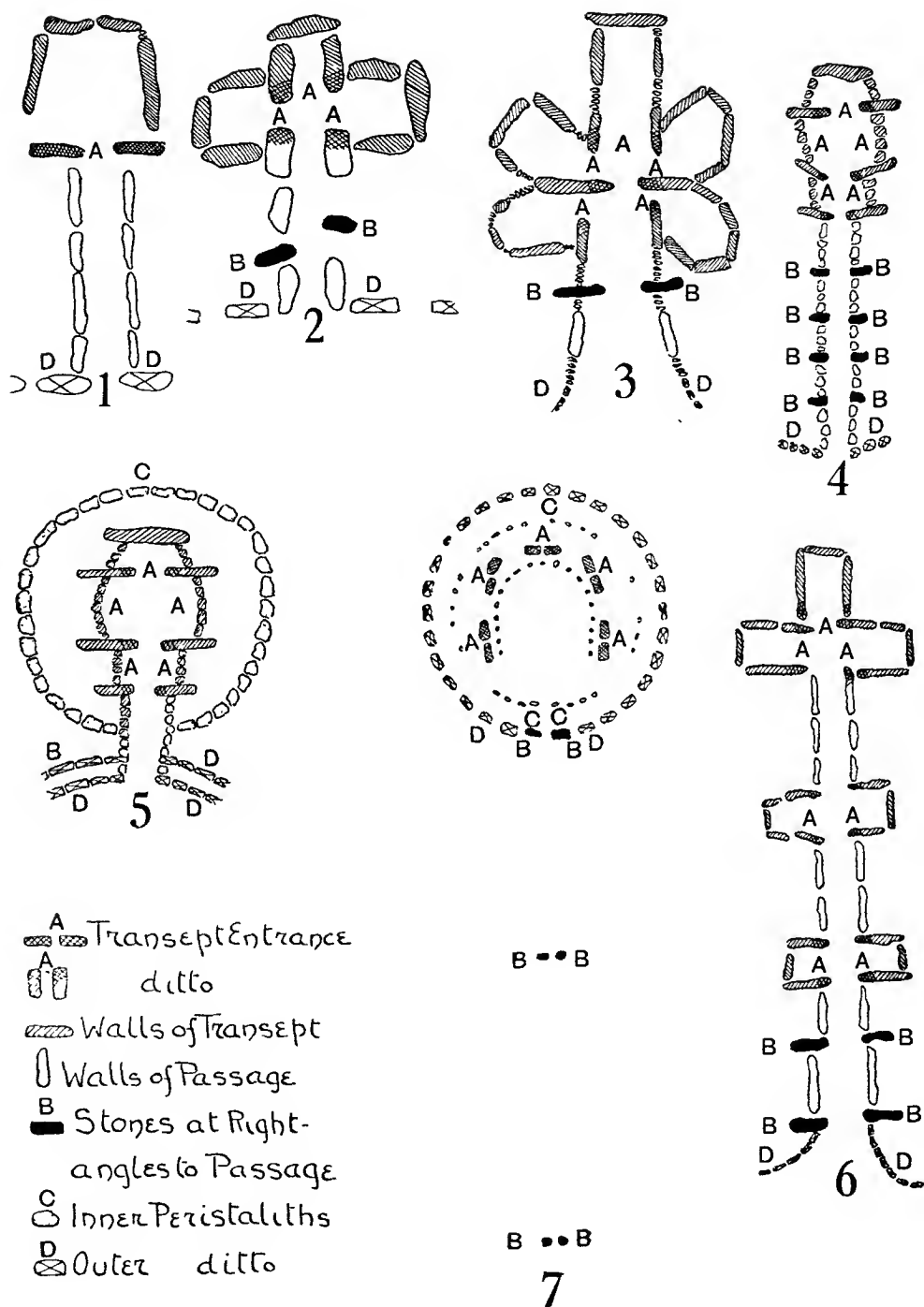
Two stones remain to be described. No. 95 is a well worked stone, 21 feet 6 inches long, 6 feet 9 inches wide and 2 feet 9 inches thick. The top end, which lies towards the south-west, is dressed flat. The other end, which lies towards the north-east, is about 154 feet from the centre, and to the north of it is a hole, 10 feet in diameter and $6\frac{1}{2}$ feet deep, in the bottom of which was found a large flake of sarsen. On the north side of this hole there was the impression of a stone on the rammed chalk which must have filled the hole between the edge and the stone. There is no doubt that this hole once held an upright stone, and considering the symmetrical arrangement of the stones already described, it may be fairly assumed that no. 95 formerly stood upright on its north-east end, thus making a pair. No hole was found for it, but there was a cutting in the chalk about 4 feet deep all round the stone: if this represented the depth of its original hole, it would leave 17 feet 6 inches of it above ground, in which case the total height of its fellow would have been 24 feet. This would be a similar case to that of stones 55 and 56, where the necessary height was obtained at the expense of the foundations of the shorter stone.

The last stone, 96 (about 256 feet from the centre), is a rough naturally pointed stone and bears little or no trace of dressing. A ditch where necessary, so far as it has been excavated, seems to surround it. A fellow stone on the other side of the axis is to be expected, although the ditch rather negatives the idea of there being two stones, unless it took the form of a figure 8. Another reason for there having been two stones will be given.

The Stonehenge end of the avenue has been mentioned; it contains various holes for which it is impossible to suggest a use. The discovery of its continuation beyond the Old and New King Barrows is one of the wonders of air-photography of which the Editor of ANTIQUITY should be justly proud.*

As to the origin and purpose of Stonehenge, it has been shown that it is of two periods. The earlier, the 'Aubrey' circle, can be compared with Avebury, the Ring of Brogar, Stennis or other circles where there is, or was, something in the middle, though in the present instance all trace of the central object has been obliterated by the erection of the big stones. If a collection of drawings of stone circles be made, it will

* For this, see ANTIQUITY, I, 342, and the *Antiquaries Journal*, IV, 57, and *Air Survey and Archaeology*, 2nd edition, 1928 (Ordnance Survey Office).



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be found that stones on a circle, called peristaliths, can vary in height from 13 feet to a few inches, and as much in diameter. If Avebury be taken as one extreme, a barrow on Dunstable Downs, in which a circle of fossil urchins was found, can be taken as the other, and a sequence between these two can be found of every height and diameter. It is therefore rather difficult to differentiate between a stone circle and a cairn circle. In the last two instances given above the circle of stones surrounded something, in the first case two smaller circles, and in the other a burial of a woman and a child. Circles are not always necessarily made of upright stones only; in some the stones stand planted on an earthen circle, or the stones may be entirely absent as in the Giant's Ring at Drumho, co. Down, which has a surrounding earth bank some 15 feet high enclosing ten acres with a dolmen at the centre, or the earth circle at Naas, co. Kildare, which is 216 feet in diameter, having one upright stone at the centre with an Early Bronze Age cist-burial at the foot. In almost every case, however, where a stone-circle has been properly excavated, its use has been found to be sepulchral and nothing else. The 'Aubrey' circle can be classed with these circles and, judging by the objects found in the upper part of the ditch, its period would be Early Bronze Age at the latest, and more probably Neolithic.

As to the stone part of Stonehenge, which belongs to a later period, comparisons must be made with another class of sepulchral monuments. The following instances are given in what might be called their constructional order, but their chronological sequence is not yet definitely known. They are not drawn to any one scale. West Kennet Long Barrow (fig. 1) had a peristalith, a passage entrance and a roughly rectangular chamber. (*Archaeologia*, XLII, plate 14). Weyland's Smithy (fig. 2) was similar, but had two transepts at either side of the inner end of the passage, and two stones, one on each side of the passage towards the entrance but at right angles. (*Antiquaries Journal*, I, 193, fig. 3). Hetty Pegler's Tump, the Uley long barrow (fig. 3), had four transepts and two stones at right angles to the passage. (*Archaeologia* XLII, plate 14). Camster Cairn, Caithness (fig. 4) is usually described as tricamerated or tripartite, but in comparing it with the other examples it will be seen that the end chamber has become more enclosed and the four side chambers more open, and it may still be said to have five chambers. The passage entrance is longer in proportion to the whole and has four pairs of stones at right angles to it. (*Procs. Soc. Ant. Scot.*, VI, plate 27). Ormiegill Wick (fig. 5) is like the last. It is in a short horned cairn, but the chamber is surrounded by a circular wall of



TRILITHON ENTRANCE TO SOUTH TRANSEPT, LA HOU GUE HILL, JERSEY

Pl. 1 - Canyon, See 104

By courtesy of the South Jersey

STONEHENGE

stones inside the cairn, which may be said to take the place of an inner peristalith. (*Procs. Soc. Ant. Scot.*, VII, plate 62). Stoney Littleton (fig. 6) has six transepts and two pairs of stones at right angles to the passage. (*Archaeologia*, XLII, plate 14).

How can these be compared with Stonehenge (fig. 7)? Both long and round barrows have instances of either peristaliths or dry walls surrounding their bases; this corresponds to the sarsen circle. The passage entrance has become stones 30 and 1, 95, 96 and their fellows. In fig. 5, the dotted circle shown (which is deep in the cairn, and probably occurred in many other instances, only it is not usually looked for after the burial chamber has been rifled), corresponds to the blue stone circle. The transepts, now reduced to three stones each, are the five trilithons. The best example of a trilithon entrance to a transept is in La Hougue Bie, Jersey (plate II), which has two transepts and an end chamber. In none of the above instances are there examples of dolmen idols or pillars standing free in the central chamber. Bryn Celli Ddu in Anglesey has one and La Hougue Bie had three though in this case they were only 18 inches high. It may be that they are symbolic effigies of the dead, and it is possible that the horseshoe of blue stones represented these. This comparison with chambered cairns may be thought rather exaggerated, since the one thing common to all these cairns is a roof; but at Stonehenge the roof is there now, symbolically represented by the lintels of the five trilithons and, to a lesser extent, by the lintels of the sarsen circle.

The cairns and long barrows seem not to have been made for single interments but for repeated burials, the partly charred remains of domestic animals which have been found in them being offerings to the dead. If therefore it be granted that Stonehenge represents a development of the chambered cairn, it may be supposed that by the time it was built ancestor-worship had taken a more prominent part in religion than mere offerings and worship at the actual grave, and that this development demanded a building which, whilst retaining its sepulchral character, should be greatly increased in size.

It may be objected that the jump from a chambered cairn a few feet high to Stonehenge, which is over 20 feet in height, is too great, but intermediate forms may possibly be provided by wooden structures, the archaeology of which is as yet only in its infancy. A wooden structure has been found in a long barrow in Wor Barrow, and Bleasdale seems to be a wooden circle (*Trans. Lancs. & Cheshire Antiq. Soc.*, XVIII).

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Woodhenge, which has not yet been published, is undoubtedly similar to Stonehenge and may have had eight *trizulons*, if such a word can be allowed.

Nothing has been said as yet about orientation. That Stonehenge was orientated towards the sunrise at the summer solstice is a fact. That any data can be deduced from that fact is doubtful, and for any further evidence to be got from it, one must wait until the orientation of chambered cairns, either long or round, is firmly established and explained. The intentional orientation of Stonehenge is confirmed by the fact that the axis does not coincide with the middle of the causeway. Had orientation been of no importance, one would suppose that the stone circle would have been so built that its axis would correspond to the middle of the existing causeway of the older 'Aubrey' circle.

As to when Stonehenge was built, it must be frankly admitted that any definite date is at present beyond our knowledge. Even a period in the Bronze Age is suggested with diffidence and must be received with caution. The 'Aubrey' circle cannot be later than the earliest period of the Bronze Age, and may belong to the end of the Neolithic Age. That Stonehenge was built after the 'Aubrey' circle is certain, and it appears to be closely associated with several barrows of the Middle Bronze Age. If it is true that chips of the blue stone were found in two of these barrows, then Stonehenge must be earlier than them. We are thus left with the end of the Early Bronze Age or the beginning of the Middle Bronze Age, to which a comparative date of about 1500 B.C. may be given.

Of the many post-holes (black) shown on the plan and not yet mentioned, nothing definite can be said. In two cases a shallow grave had been cut between two post-holes; no objects were found in them and the remains have been classed as Early Iron Age or later. The holes (dotted blue) at the inner ends of the inclines to the outer blue stones on the north-east, may be connected with the 'Aubrey' circle.

Notes and News

ANCIENT RESERVOIRS NEAR KASR AZRAK

The following notes has been communicated by Group Captain L. W. B. Rees, v.c., together with the plans, made by himself, reproduced herewith. Both the reservoirs lie in the northern part of the Wadi Sirhan; the one called Ain el Asad is immediately south of the Roman fort at Azrak.

‘ This is a description and compass sketch of the Byzantine reservoir at Ain el Asad (fig. 1). The Roman fort of Azrak is a few miles to the north, on the southern end of the main road to Imtan and to Salkhad. The road is still used by camel convoys of salt coming up from the salt villages near Kaf in the Wadi Sirhan. These convoys, however, now water at Hazim and travel along the eastern edge of the Azrak marshes, whereas in the old days the road from Kaf followed the Wadi to the west of Jebel Tsokra (Rashrashiyeh) to Amari wells. There is a large reservoir at the end of Jebel Tsokra, and a town near the Amari wells, now nearly covered with sand. From here the track led up to Ain el Asad and then joined the made road through the basalt area. This made road is about thirty yards broad and at present contains some fifteen separate camel tracks crossing and recrossing between the road walls. The road has guard houses at intervals and there are a number of milestones lying about. I have rescued one from the Azrak Castle bearing the inscription MIL PAS LXXXVII OZ. The ruins of Awwaz on the road are exactly this distance from Azrak. They are near Salkhad.

‘ About fifty yards west of the middle of the western side of Ain el Asad is a mound. A Byzantine door threshold can be seen in the sand, but the remainder of the works are covered. The area is practically square. There are walls of sand all round and a mound of sand roughly in the centre. On the Majeba graves a mile away are lying Byzantine capitals, pillars and pedestals, worked in basalt. They probably came from the mound.

‘ An interesting feature is the ground near the NW corner of the reservoir, which shows small circular and square foundations. Two

A vertical line with an arrow pointing downwards, labeled 'N'.

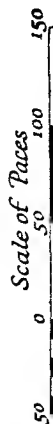


FIG. 1. BYZANTINE RESERVOIR AT AIN EL ASAD

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of the circles are shown at the corner A of the reservoir. I dug down six feet into one circle and found that there were three rows of stones on a circular foundation. The foundation projected inwards six inches, and I went down two stones further. There was no sign of a bottom. This part of the circle was filled with loose stones and not much sand. At first sight the circles might be taken for wells, but they are so near the reservoir that this is unlikely. The construction is the same as that of the reservoir.

' The other interesting feature is the long wall round the south end of the marshes. The wall joined on to the reservoir at point B and runs roughly in a semicircle till it becomes lost in the sand at the end of the diameter some five miles east of the reservoir. The wall still holds enough water to form large duck ponds. Thousands of duck, sand-grouse and other birds water here. The pools near the reservoir hold carp and mud-fish. The mud-fish run to about five feet in length and some of the carp weigh 4 lbs. and over. They can be caught on a fly. His Highness the Amir says that the water from Ain el Asad is as good as any in Trans-Jordan.

' I could think of no reason for the part of the wall to the east of the reservoir, marked F-E. It is not built symmetrically and is of no obvious use. The whole work in this part of the marsh is covered, or nearly covered with silt. Originally the reservoir walls held up some six feet of water. It has therefore taken, shall we say, six thousand years to silt up six feet. If Ain el Asad were built now the water pressure would probably make the spring come up somewhere else in the marsh in preference to filling the reservoir. It must therefore be taken that the water level in this area has fallen considerably in the last two (?) thousand years, possibly six feet. These points are important when we come to consider "kites". It verifies the impression gained from the air, merely by looking, that the "kites" are very old.

' The other reservoir (fig. 2) is interesting because it is so unexpected. It happens in the middle of the desert between Amari wells and Kaf in the Wadi Sirhan. It is quite close to the car track between Amman and Kaf. The area is surprising, but in this part of the country the head of water can never have been great. The land is nearly level for many miles around. The construction is Byzantine but I had no time to find where the culvert led. It appeared to lose itself in a large heap of sand. The site is well chosen. Even at the present time water lies here nearly all the year round, although the reservoir walls are broken '.

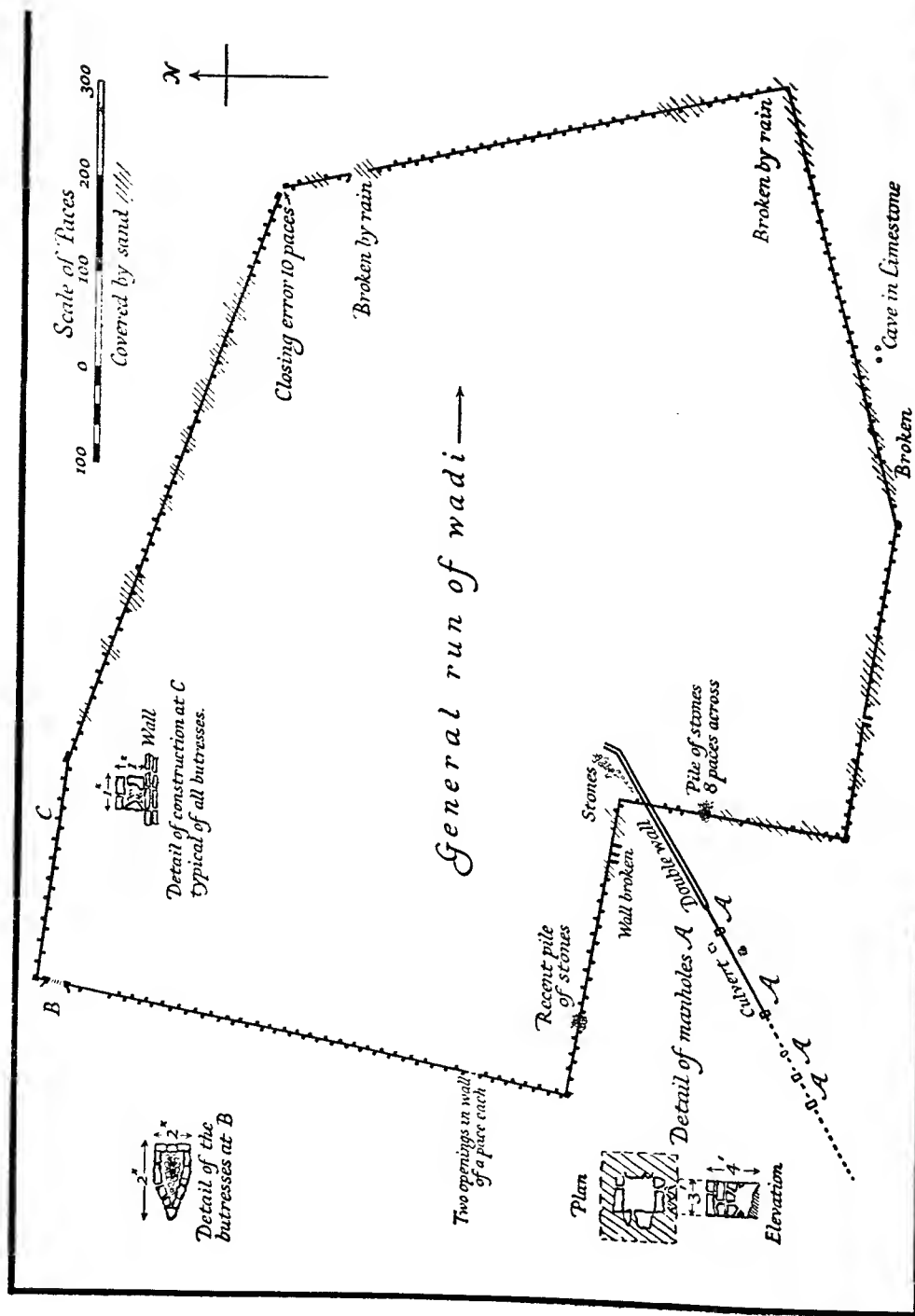


FIG. 2. RESERVOIR BETWEEN AMARI AND KAF

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THE ROMAN WALL

Hadrian's Wall from the Tyne to the Solway ranks with Avebury and Stonehenge as one of our most famous ancient monuments. It is good to learn that it has now been scheduled as such, and it is to be hoped that this measure will protect it from mutilation or destruction. Though most of its course is known with some precision, there are portions which are still lost. One of these is in the town of Newcastle itself, where it has naturally been used as a quarry for ages past. Thanks to the efforts of the Roman Newcastle Investigation Committee, about 200 yards have already been discovered by means of digging trenches in the heart of the town. Now that this much has been done the course will be less difficult to follow up, since, even where the masonry is gone, the silted-up ditch remains and can be detected by the different character of the filling from the surrounding soil. It is only a matter of time and money before the Roman fort of Pons Aelii is located, the old castle in the heart of Newcastle. Excavation of this kind is much more valuable than mere pot-hunting, for it leads directly to the acquisition of new knowledge. There is nothing sensational about such work, but the thrill of each discovery is ample reward for those who have experienced it. The Committee deserves the practical support of all those Tyne-siders and others who appreciate good solid work for the advancement of Science. (The Hon. Secretary of the Committee is Lieut.-Colonel G. R. B. Spain, C.M.G., F.S.A., 8 Mosley Street, Newcastle-on-Tyne).

ST. COLUMBA AND IONA

We have received the following note from Professor R. A. S. Macalister :—

‘The Editor of *ANTIQUITY* has recently deprecated controversy and I detest it. Sometimes, however, when a sciolist talks nonsense, there is an unfortunate necessity to show the error of his ways to other people, (not to the culprit himself: Proverbs xxvi, 12). But happily there is no such unpleasantness in the questions at issue between Dr Simpson and myself, though in some of them we must agree to differ, profoundly. I may later find occasion to express my own views more at length than I could have done in a short review, and more clearly than I seem to have done in noticing Dr Simpson's book. Meanwhile I only ask permission to make a personal explanation as to the alleged “Round Tower” on Iona: for I should be sorry if Dr Simpson continued to think that I had been misled by the modern well-head. It was my

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privilege to enjoy the friendship of the late Dr Macgregor Chalmers. I was in his company on the island several times, and took part in some of his explorations of the cathedral substructures. I remember his excitement when the foundation appeared, which at first he supposed be that of a round tower, but I also remember that he completely abandoned this interpretation, on the ground that the dimensions were too small. In questioning the authenticity of the "round tower" I was sheltering under his judgment. I am confirmed in this recollection of Dr Chalmers' change of view by one of the trustees of the antiquities of the island, who was also in close touch with Dr Chalmers at every stage of his work'.

THE PAST IN THE PRESENT

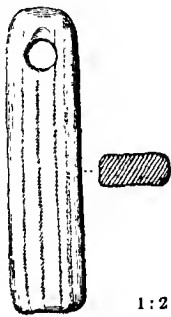


FIG. 1. MODERN HONE
FROM EL KANTARA,
ALGERIA

No archaeologist can shut his eyes to primitive survivals of the Stone Age, whether they be weapons and tools or habits of life. It is not necessary to go as far as Polynesia to discover stone implements in daily use. The little oblong stone implement here illustrated (fig. 1) was obtained by the Editor (through the kind offices of Mr Hilton Simpson) at El Kantara in Algeria. It is said to have been obtained in Mecca by a pilgrim; certainly there is no stone of sufficient hardness in the El Kantara district. It is a fine-grained sedimentary rock, of a greenish colour with dark bands, and is used for sharpening razors. The hole is for a leathern thong (still attached). To us its interest lies in its perfect resemblance to the hone-stones so often dug up in British barrows, particularly those of the Early Bronze Age. Their purpose is proved by this Algerian example, and it is plain that they were not, as has also been suggested, amulets. Doubtless they were used to sharpen the edge of those bronze blades which are so often found buried with them.

The hafted axe (fig. 2) from Neuchâtel is a fine specimen in itself. The wooden handle and even the fibre cord at the top are well preserved. It shows exactly how these axes were hafted, with the aid of a horn holder which was less liable than the wood to be split by the force of a blow. (Readers of our last number will remember M. Vouga's remarks on this subject). But we have chosen it for illustration because we happen to have seen a modern stone axe, also complete and hafted in a similar way. The Esquimaux axe (fig. 3) which belongs to Dr T. G. Longstaff, who kindly lent it for illustration, is inserted in a bone

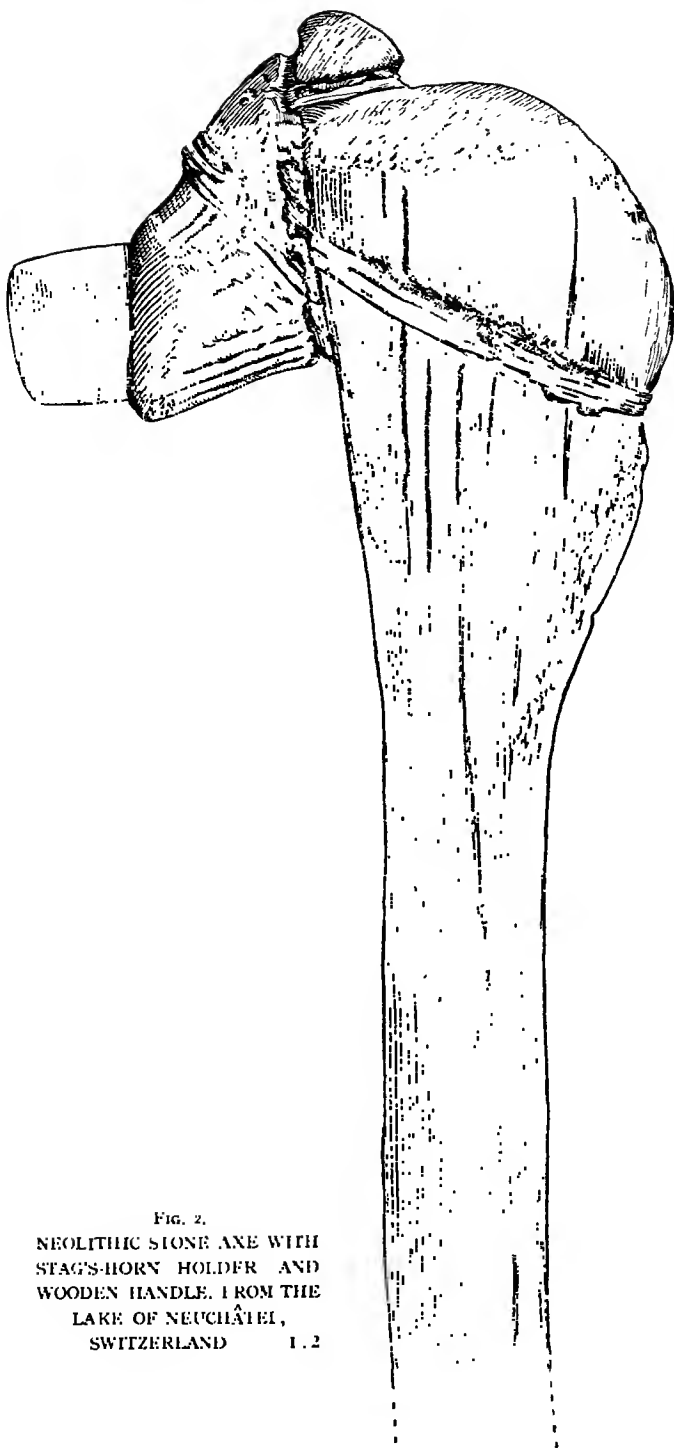


FIG. 2.
NEOLITHIC STONE AXE WITH
STAG'S-HORN HOLDER AND
WOODEN HANDLE. FROM THE
LAKE OF NEUCHÂTEL,
SWITZERLAND 1.2

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holder and the precise method is not quite the same as that employed by the prehistoric Swiss lake-dweller; but there is a sufficiently striking resemblance. Had the bone handle been ancient and dug up

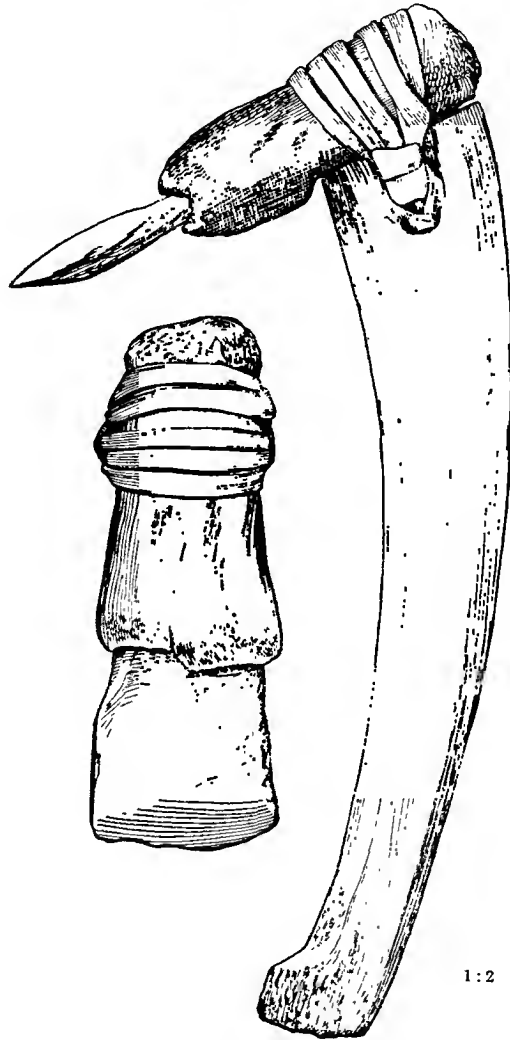


FIG. 3. MODERN ESQUIMAUX STONE ADZE WITH BONE HOLDER AND HANDLE, POINT BARROW, ALASKA

by an excavator, it might have been difficult to explain its purpose. Too little use is made of the Esquimaux by students of prehistory. Whether or not they are the descendants of the hunters of the Old Stone Age—

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and a strong case has been made out for this theory—they certainly use things which closely resemble prehistoric European implements. The remarkable pronged horn objects which were found on our Neolithic sites at Windmill Hill and near Abingdon were explained by the discovery that modern Esquimaux employ similar objects for removing the hair from skins (see *Antiquaries Journal*, VIII, 470). Their flint scrapers too are identical with our prehistoric ones (Evans, *Ancient Stone Implements*, p. 263, fig. 203). Their methods of flint-flaking, particularly for making arrowheads, deserve close study (see *ibid.* pp. 33–36).

Analogies such as these illustrated here are valuable because the environment, in the modern instances, is not wholly dissimilar to the environment of our prehistoric ancestors. It is in such surroundings that the student, whose main interest lies in the past, will reap the biggest harvest.

WHEEL-TRACKS AND THE RAILWAY-GAUGE

Captain Alexander Hardcastle writes, from Agrigento, Sicily :—

‘ There were recently many letters in *The Times* about the origin of our strange railway gauge of 4 feet 8½ inches, now world-wide. One writer thought it dated from last century only, while another attributed it to the Romans. But evidently it is much older still. At Syracuse I selected some clear wheel-tracks of the 4th century B.C. and found them to be exactly 4 feet 8½ inches between the inner edges of the iron tyres. Here at Agrigento (Girgenti) I have photographed a measuring rod in position; the print [enclosed in Captain Hardcastle’s letter] shows the ends quite exactly over the inner edges of the Greek tyres of the 5th century B.C. An old disused stone quarry at Viterbo (Italy) also shows clear wheel tracks precisely 4 feet 8½ inches, inside measurement of iron tyres. The prehistoric Maltese cart tracks have the same dimensions.

‘ Perhaps somebody will now trace it back to Crete and Assyria and find some religious origin for this remarkable tradition ’.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

Another prehistoric cave has been found at Altamira in Spain, 150 yards from the celebrated one containing the wall-paintings. A well preserved skeleton and scattered human bones have been found. The cave has been closed for study. (*L'Anthropologie*, xxxviii, 444).



In a stone grave of the Bronze Age at Courtavant, Commune de Barbuise (Aube, France) there have been found a piece of leaf-gold with repoussé ornament, a bronze pin 18 inches long, fragments of bracers with spiral ornament, rings and bracelets, and four pots in a bad condition. The skeleton was that of a woman. The association of these objects is an important archaeological fact, and one hopes that the pots will be mended and a careful plan made of the grave. (*Bulletin de la Soc. préhist. Franc.*, November 1928; *Le Temps*, 10 December 1928).



A female figurine, unfortunately imperfect, carved out of stag's horn, has been found at Lumbres (Pas-de-Calais, France) by Dr Pontier. The site which he is excavating there contains two levels which he regards as being respectively Azilian and Neolithic. The figurine was in the lower (Azilian) level, but in the absence of any analogous contemporary finds an overlap into the preceding Magdalenian period is suggested. The southern hunters may have ranged far north (cf. the Magdalenian harpoon). It is claimed that the Azilian layer at Lumbres contains pottery. The full publication of the excavations will be awaited with interest. (*Bull. de la Soc. préhist. Franc.*, November 1928, pp. 446-7, 450-2).

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Miss Caton-Thompson and Miss Kenyon have been commissioned by the British Association to explore the ruins of Rhodesia, of which Zimbabwe is the most famous. The fabulous age claimed for them was completely disposed of by Dr Randall-MacIver on the occasion of the Association's last meeting in South Africa in 1905 (*see Report*, pp. 301-4), but romantic fables take a deal of killing, and it is high time that the coup-de-grâce was administered to this one.



The excavation of the Roman fort of Kanovium (Caerhun, near Conway, North Wales) was completed during the third season's work in 1928. This summer it is proposed to examine a portion of the land outside, where there are indications of a civil settlement. A full report appeared in *Archaeologia Cambrensis*, December 1928.



An important stone relief has been found at Beisan (Beth-Shan) by Dr Alan Rowe of Pennsylvania University. It is a basalt panel 3 feet high and depicts a lion fighting with a dog. It was found in the temple of Mekal in the level of Thothmes III (1501-1447 B.C.). An account of the excavations was published in *ANTIQUITY* II, 192-5. (*Ill. London News*, 22 December 1928, p. 1181. An article by Dr Rowe appeared in the same paper 8 December, p. 1093).



Those in search of somewhere to spend a holiday might well visit Grand Pressigny in Touraine, Dept. of Indre-et-Loire. It is a picturesque spot, well-known to archaeologists as the centre of a prehistoric industry. The flint has a characteristic honey-colour and objects made of it were exported to distant regions. A fine collection of them is displayed in a room at the Town Hall. The principal other workshop-sites are in the communes of Abilly and Neuilly-le-Brignon. The district abounds in rock-shelters and there is a 'cave-village' at St Remy-sur-Creuse. There are said to be aligned stones and 'pseudo-cromlechs' in the field of Brenne, Commune of Neuilly-le-Brignon. (*Bull. de la Soc. préhist. Franc.*, October 1928, pp. 387-8; *Le Grand Tourisme*, Paris, no. 109).

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A Jutish cemetery has been discovered at Finglesham, near Deal (Kent 48 sw), and is being excavated by Mr W. Whiting, F.S.A., of Faversham and Mr W. P. D. Stebbing of Deal. About 20 graves have been found, containing the usual assortment of glass and pottery vessels, arms and jewels. (*Daily Telegraph*, 11 December 1928).



An engraved masked human figure upon a rib-bone has been found in Pin Hole cave, Cresswell, Derbyshire. It belongs to the Upper Palaeolithic. The stratification of the cave is good. The finder, Mr A. Leslie Armstrong, F.S.A., will publish an account in the Journal of the Royal Anthropological Institute. (*Nature*, 8 December 1928).



Mr Callander's long awaited paper on Scottish neolithic pottery was read at Edinburgh 10 December 1928, and will be published shortly in the Proceedings of the Society of Antiquaries of Scotland. (*Scotsman*, 11 December 1928).



The second year's work at Caer Flos, also called the Gaer, a Roman fort near Forden, Montgomery, has produced valuable results in the form of new knowledge about the Roman occupation of Wales. The excavations, which are being directed by Mr F. N. Pryce of the British Museum, will be continued this summer. (*Daily Telegraph*, 29 December 1928).



Bushman paintings have been discovered in a cave in Basutoland by a German expedition led by Dr Frobenius of Frankfort University. The paintings, which are very well preserved, belong to different periods, and represent hunting-scenes. There is also a battle-scene in which the fighters are shown in dark brown and white paint respectively. Drawings have also been made by Dr Frobenius of paintings in the Orange Free State and Rhodesia. (*The Times*, 2 January 1929).

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The discoveries at Kish may become of first-rate importance when they are fully published. So much however depends upon the stratification that we must wait until plans and sections appear before referring to them at greater length. Dr Langdon's letter in *The Times* (4 January 1929, p. 8) shows that the materials for a most valuable book are available.



A mosaic pavement with Hebrew writing on it has been found at Khirbet Beit Ilfa, near Shutta Station, Palestine. It is regarded as belonging to a 2nd century synagogue. Further investigations are to be carried out by Dr E. Sukenik, on behalf of the Hebrew University (*The Times*, 5 January 1929).



An effort is being made to acquire the site and ruins of Lessness Abbey, near Woolwich, for conversion into a 'show-place'. Being so near London it is admirably suited for the purpose, and we heartily commend the project. Of the total sum required (£20,000) no less than £1000 has been contributed by the Woolwich Borough Council—a most public-spirited act, for which future generations at any rate will be grateful.



By the time this number of *ANTIQUITY* is published most of this season's reports on the work at Ur will have appeared in *The Times*. The first report (11 January 1929, p. 11) indicated that the Royal Tombs had not then been reached, but the second (22 January, p. 11) shows that their existence is proven and that the finds are already of great interest. A 'death pit', some 25 feet square, yielded gold ornaments and head dresses equalling those in the King's grave last season, and there are great hopes that below the pit will be found the royal tomb to which it should be the introduction. Amongst the finds already made are a cylinder seal inscribed 'Mes-Kalam-dug the King', a harp, and 'a painted clay pot whose connexions with Kish and the circumstances of its finding here are most important for comparative chronology'. Some of these objects are illustrated in the *Illus. London News*, 26 January 1929.

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Mr Leakey claims to have found Aurignacian remains associated with pottery in ' Gambles Cave ', El Menteita (Kenya), if he is correctly reported in *The Times*. Publication of the evidence upon which this claim rests will be awaited with interest (*The Times*, 12 January 1929, p. 11). The views of Professor Hans Reck, of Berlin, were communicated to *The Times* of 16 January, p. 11.



A Roman inscription has been found at Bowes (Lavatræ) Yorkshire. (*Newcastle Daily Journal and North Star*, 11 January 1929).



The Roman fort of Garrianonum (Burgh Castle, Suffolk) is falling into disrepair and efforts are being made locally to preserve it (*Eastern Daily Press*, 12 January 1929).



An interesting account of the city of Jerash and the work done there by the British School of Archaeology in Jerusalem, particularly on the site of the church of St. Theodore (5th century A.D.) and of a second church to the east of it, is communicated to *The Times*, 2 January 1929, pp. 13-14. A full report, with plan, appears in the current number of the *Palestine Exploration Fund Quarterly Statement*.



The task of draining Lake Nemi has proceeded steadily since last October and it will not be long before the remains of the Roman galleys—such as they may be—are revealed. An account of former attempts to raise the galleys is contributed to *The Times*, 21 January 1929, pp. 13-14, by its Rome correspondent.

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. Books are occasionally included.

GENERAL

The Indebtedness of Greek to Chaldaean astronomy, by Prof. J. K. Fotheringham. *The Observatory*, October 1928, LI, 301-15.

The Origin of Some Hallstatt types, by Prof. V. Gordon Childe. *Man*, November 1928, XXVII, no. 140.

Nova et Vetera—a plea for a new method in palaeolithic archaeology. Presidential address by Dorothy A. E. Garrod to the Prehistoric Soc. of East Anglia. *Proceedings* (1928), v, 260-67.

A very welcome contribution to a subject which, as the writer says, has been 'smitten with a certain deadness' in recent years. Miss Garrod's suggestions with regard to method are based upon thoroughly sound principles, which are unaffected by any criticisms that may be made of her genealogical tree on p. 262. All students of prehistory should read it.

Field Archaeology as a profession, by Sir Frederic Kenyon, Director of the British Museum. *Nineteenth Century and After*, November 1928, pp. 659-68.

The problem of the pre-Chellean industries, by C. E. Vulliamy. *Man*, January 1929, no. 2.

An admirable exposition with some quite fresh arguments, by a disbeliever in 'pliocene man'.

Un cas intéressant de pathologie préhistorique—une pointe de silex dans une vertèbre néolithique, by Ch. Morel and M. Baudouin. *Progrès médical*, 23 June 1928.

Contains also an account of other similar discoveries, and may be found useful by those who assert the peaceful character of the so-called 'archaic civilization'. [See ANTIQUITY, I, 121-2].

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La Cultura del Vaso campaniforme : su origen y extension en Europa, by Alberto del Castillo Yurrita. Barcelona, 1928. 216 pp., 206 plates, 2 maps.

A full treatment of beakers, and their makers: an account of the Spanish groups and of the extension of the beaker outside Spain, with suggested explanations. The best book on the subject.

ABYSSINIA

Contribution à l'étude des megaliths Abyssins ; comparaisons avec d'autres monuments ; remarques sur l'interpretation des megaliths, by H. Neuville. *L'Anthropologie* 1928, XXXVIII, 255-88 (the first article of a series).

AMERICA

Some unusual spear-throwers of ancient America, by J. Alden Mason. *The Museum Journal* (Univ. of Pennsylvania Museum, quarterly) September 1928, pp. 290-324.

CHINA

The Lower Molar hominid tooth from the Chou Kou Tien deposit, by Davidson Black. *Memoirs of the Geological Survey of China* (Palaeontologica Sinica, series D, vol. VII, fasc. 1, 1927, Peking). 13 pages, 2 plates, numerous text-figures. In English and Chinese.

EGYPT

The Empty Sarcophagus of the Mother of Cheops, by G. A. Reisner. *Bulletin of the Museum of Fine Arts*, Boston, October 1928, XXVI, 76-88.

A fully illustrated account, and incidentally an admirable exposition of the methods of modern archaeology.

ENGLAND—SCOTLAND

The River Solent and its tributaries, by Henry Bury, M.A., F.G.S. *Proc. Bournemouth Nat. Sci. Soc.* XX, 88-96.

A neolithic site at Abingdon, Berks (2nd report), by E. Thurlow Leeds. *Antiquaries Journal* (October 1928), VIII, 461-77.

A chambered cairn at Allt-nam-Ban, Strathbrora, Sutherland, by W. Douglas Simpson. *Antiquaries Journal* (October 1928), VIII, 485-88.

NOTES AND NEWS

FRANCE

Le Camp à Fossés de Mousrez, Commune de Berneuil (Charente-Inférieure), by Dr Marcel Baudouin. *Bull. de la Soc. préh. Franc.* (October 1928), xxv, 431-2.

The camp is neolithic or eneolithic in date, but, unlike the neighbouring camp of Peu Richard, has never been systematically explored. It has, however, yielded a great abundance of stone implements and some pottery, here catalogued in resumé.

Cinq années de fouilles au Fort-Harrouard (1921-1925), by the Abbé J. Philippe. Pp. viii, 175, 4 plans, 36 plates, 18 line-blocks in text. Librairie Lestringant, Rouen, 1928. 60 francs.

Note on the excavations here described in *Bull. de la Soc. préh. Franc.* (September 1928), xxv, 368-76, by M. G. Poisson.

Fouilles au Fort-Harrouard, Commune de Sorel (Eure-et-Loir) by the Abbé J. Philippe. *Bull. de la Soc. normande d'études préhistoriques* 1922-4, vol. xxv. Rouen, 1926.

Fully illustrated description of the excavation of a camp containing, it is alleged, stratified remains of the neolithic, bronze and iron ages. Previous accounts have appeared in vols. xv (1907), xviii (1910), xx (1912), and xxi (1913) of the same bulletin. Review in *L'Anthropologie*, xxxviii, 381-2.

Les nouvelles publications glozéiennes, by A. Vayson de Pradenne. *Bull. de la Soc. préh. Franç.* (1928), xxv, 322-31.

Reviews the recent effusions of the adherents of Glozel—a rapidly diminishing band. The off-print is separately paged—a practice now given up by most enlightened societies. It is one which adds immensely to the labour of the bibliographer, and it cannot be too strongly condemned. The note on the outside, moreover, states the year, but not the serial number of the volume.

L'Origine du faisan d'Europe, by Cl. Gaillard. Assoc. Franc. pour l'avancement des sciences, Lyon, 1926.

Proof that the pheasant is indigenous in France, since its bones have been found in late palaeolithic deposits.

Notice sur les chevaux sauvages, bisons, aurochs et élans dans les Vosges, by Emile Linckenheld. *L'Anthropologie* (1928), xxxviii, 245-54.

An enquiry into the (surprisingly late) date down to which these animals survived in the Vosges, based upon documentary evidence. The implications of the results arrived at are obvious, and deserve to be carefully studied by all excavators.

IRAQ

Sumerer und Semiter in Babylonien, by Bruno Meissner. *Archiv für Orientforschung* (Jan.-Feb. 1928), I, 1-10 and numerous illustrations.

ANTIQUITY

Old Sumerian Art, by L. Legrain. *The Museum Journal* (Univ. of Pennsylvania Museum, quarterly), September 1928, pp. 221-47.

Account of the recent finds in the Royal Tombs of Ur, well illustrated.

The Excavations at Ur, by H. R. Hall. *British Museum Quarterly* (1928), III, 65-9.

Description of some of the more important objects from the Royal Tombs found 1927-8, together with excellent illustrations.

MALTA

The Maltese rock-tombs, by Prof. T. Zammit. *Antiquaries Journal* (1928), VIII, 478-84.

An important minor contribution to knowledge, for Dr Zammit has been able to establish that some of the rock-cut tombs were contemporary with the megalithic buildings such as Hal Tarxien. Pottery of the kind called neolithic has been found in them, resembling the pottery from the megalithic sites. Thus Malta falls into line with other Mediterranean islands, such as Sicily and Mallorca, where artificial caves were made for burials. See Dr Zammit's latest Report, for 1927-8 (Govt. Printing Office, Malta) and the references in ANTIQUITY, II, 214-15.

SYRIA

Topographie historique de la Syrie antique et médiévale, par René Dussaud. Geuthner, Paris, 1927. Pp. lii, 632 and 16 maps. 200 francs.

Fouilles de l'École archéologique française de Jerusalem, by Fathers Abel and Barrois. *Syria*, IX, 187-206 (to be continued).

La sixième campagne des fouilles de Byblos (mai-juillet, 1927), by Maurice Dunand. *Syria*, IX, 173-86.

Excavation of a palaeolithic cave in western Judaea, by Dorothy A. E. Garrod. *Palestine Exploration Fund Quarterly Statement*, October 1928, pp. 182-85.

The cave is that of Shukbah, 17½ miles NW of Jerusalem.

Mission archéologique en Haute Djezireh (automne 1927), by Father A. Poidebard. *Syria*, IX, 217-23.

Preliminary notes showing what valuable work is being done by Father Poidebard, who is, we believe, the only foreign archaeologist who is using an aeroplane. We shall look forward with the greatest interest to the book which he will doubtless publish in due course. We hope the air-photographs will be better reproduced than those illustrating this article, which suffer from unsuitable paper and over-reduction.

Reviews

THE CIVILISATION OF GREECE IN THE BRONZE AGE. By H. R. HALL.
London : Methuen 1928. pp. xxxii, 302, and 2 maps. 30s.

The lectures here first published were delivered in Edinburgh in 1928 before an audience learned indeed, but not purely archaeological. The present text can however bear little relation to the six addresses then delivered, since the fruits of subsequent excavations and researches in the Near East down to the latest discoveries at Ur of the Chaldees and the second volume of the Palace of Minos have been embodied without trace of a join. So here is a thoroughly up to date work well adapted for the public to whom it is addressed. Illustrated with 369 excellent photographs or drawings and written throughout in a pleasing style, it gives a very vivid picture of Minoan life especially on the aesthetic side.

It is indeed adapted neither as an introduction for the novice nor a text book. The conditions of a course of six lectures have entailed a modification of the usually accepted nine-fold division that, despite the clear explanation in the first chapter, might confuse beginners. At the same time Dr Hall has confined his attention very largely to Crete, saying very little of the Cyclades and pre-Mycenaean Greece. And in this field it is naturally hard to say anything not already said by Evans. None the less even here there is fresh material for thought, especially in the comparisons with Mesopotamia. So the Danubian origin of the spiral is discarded for a Sumerian. Even copper it is suggested came to Crete, as to Egypt, direct from Asia; and as intermediaries Dr Hall has resuscitated the Phoenicians. Other novel points are the significance of Forsdyke's still unpublished discovery of iron in a Middle Minoan II context and the importation of Mycenaean faience into Assyria.

On the fiercely debated question of the chronology of the tholos tombs and other architectural features at Mycenae, the author is more than cautious. He indeed endorses the German excavators' conclusions about Tiryns (the evidence for which is still unpublished), but he merely summarizes without comment Wace's inferences without attempting an analysis of the admittedly very technical arguments advanced in support of them. On the equally, if happily less bitterly, contested issue of the nationality (or rather language) of the Mycenaeans Hall is more positive. He rejects the views of Wace and Nilssen (very properly saying nothing of Penrose Harland) and sounds a needed note of caution against too precipitate an acceptance of Forrer's identifications of Andreus, Eteokles and Atreus in Hittite documents. His own views are that the Mycenaeans did not yet speak Greek though there were Greeks dwelling already in Thessaly since the 'neolithic' Dimini period. The Hellenization of the Peloponnese at least would only begin in the late 'B' phase of Late Minoan III. In conclusion we should draw attention to a suggestive note at the end on a Russian paper by Zakharov pointing out the Caucasian analogies to the armament of the Shardina. It suggests a new line of approach to the fascinating problem of the Caucasian parallels to Hallstatt types. V. GORDON CHILDE.

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THE ARCHAEOLOGY OF IRELAND. By R. A. S. MACALISTER, LITT.D. *London : Methuen 1928. pp. xvi, 373, with 16 plates and 22 illustrations. 12s 6d.*

Professor Macalister's book will be warmly welcomed by archaeologists. It is not only the first complete review of the archaeology of Ireland—prehistoric, early Christian, and medieval,—but the work of the greatest living authority on the subject.

It has long been surmised that a scientific study of the prehistory of Ireland would throw valuable light on early cultures, both on the Continent and in England. Dr Macalister's object, however, in the present book has been rather to describe fully the antiquities of Ireland than to explain them. He has few theories to put forward, probably because he knows better than most people how much has still to be learned about Ireland's past and how many and mad the theories have been. His scientific conservatism is all to the good in an introductory work such as this is ; it opens the way for more critical and constructive books on the subject, especially for one on Ireland's external relations in prehistoric times. He emphasizes the fact—too often forgotten—that prehistoric Ireland was not, like England, an island of the North Sea, but an island of the Atlantic ; how much of the island's early civilization is due to insular development, how much to important customs, has yet to be discovered. But in this book Dr Macalister has dissipated some popular ideas about the Celtic Irish and their culture, he has displayed the archaeological treasures of Ireland as they have never before been displayed, and he has shown that Ireland, if only because of her isolation, has still valuable contributions to make to European archaeology.

Nothing is omitted, from the Asturian flints noted quite recently by Dr Bremer to the erasures in the Book of Dimma discovered by Dr Best ; from the unique jar-burial, similar to those at El Argar, unearthed in 1737 in county Cork, to the methods of construction of Ogham alphabets ; from the only coloured stone carving of the Bronze Age yet found in Ireland to the occurrence of stepped battlements on late Irish Gothic buildings. In his endeavour to make his survey as complete as possible the author has searched the whole of the archaeological and historical literature of his country and published everything which, in the light of modern knowledge, seemed important, giving full references to his sources. If for nothing else, he has deserved the gratitude of all future students of Irish archaeology for the bibliographical information given in this book, since some of the most important contributions to the subject are buried in obscure or little-read publications.

Dr Macalister has no encouragement for those who believe that Ireland was inhabited in Palaeolithic times, but finds the trace of Asturian and Campignian civilizations in northern Ireland definite, though slight. These he dates as hardly earlier than 7000 B.C. He repeats the theory, stated already in his *Ireland in Pre-Celtic Times*, that the earliest inhabitants of Ireland were probably the same race as the historical Picts of Scotland ; as it is based mainly on the fact that both had a matriarchal system, which of course was not peculiar to them, the theory is not yet proved. In the chapter on the Neolithic and Bronze Ages too much space is devoted to formal descriptions of commonplaces like core, flake, scraper, flange, stop-ridge and palstave. The book is evidently meant for readers who have little, if any, archaeological learning ; but as few of these are likely to read it, the space might have been given, with advantage, to a fuller discussion of Stone Age chronology. The same may be said of the chapter on the ' Principles of Christian Art ', which consists partly of a long list of the subjects treated by early Christian artists in Ireland, although these subjects belonged to the common stock of northern Europe,

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and partly of geometrical analyses of the key, diaper, interlacing and other patterns, such as can be found in most good books on design.

The author's interpretation of the sculptures on the Clonfinloch stone as a picture of a battlefield is interesting but somewhat arbitrary, inasmuch as it is based on comparison with photographs of Neolithic wall-paintings in Spain shown to the author by Abbé Breuil, but not yet published, as far as I am aware. To the ordinary observer there are only two figures on the stone which might possibly represent men, the rest being nondescript; with a few resembling axes and footmarks, such as are found in Neolithic sculptures in Brittany and Scandinavia. Abbé Breuil's photographs should be well worth publishing. This stone is regarded by Dr Macalister as another proof of very early relations between Ireland and the Iberian Peninsula, such as are certainly indicated by the Irish Asturian flints, the bell-beakers and the halberds. He has himself discovered a new and important link by noting the fact—not, I believe, noted before—that there is in Portugal a type of Neolithic javelin-head corresponding to the large, flat, lozenge-shaped ones found in Ireland.

The author finds no relations between Ireland and Scandinavia before the Viking period, although there are reasons for believing that some Scandinavian customs had reached Ireland by Early Iron Age times. In this connexion he is opposed to the common theory that the Trundholm Moss chariot indicates that some, if not all, of the Irish sun-discs were associated with sun-worship. He thinks that they were personal ornaments, and holds that the marginal holes in the bronze disc from Ireland, now in the British Museum, were merely for sewing the disc to a garment. His view is probably correct for many of the Irish discs, though it is impossible to ignore the great similarity between the Trundholm Moss and British Museum discs and the evidence provided by the broken bronze disc, gilt with gold, found in Ireland. In any case, these ornamented gold discs can only have been worn by persons of wealth or dignity, so that, in view of other evidence, it may be inferred that they were worn by priests. Dr Macalister seems, indeed, to have an objection to solar symbols—possibly because continental archaeologists have found in them a ready solution to all sorts of problems; later on he affirms that the wheel-cross was not derived from a sun-symbol, but from the halo.

The Bronze Age date which the author assigned to the stone forts of Aran in *Ireland in Pre-Celtic Times* is here changed, rightly, for a later date, and he will have none of the theory that some Irish lake-dwellings are earlier than the Iron Age. He records the discovery by Dr Bremer of a small labyrinth at Sess Kilgreen, which has established a Bronze Age date for the well-known Hollywood stone and opened the way for further research into the meaning of the labyrinth in northern regions.

In his chapter on 'The Beginning of Written Record in Ireland' Dr Macalister tackles a problem of the greatest interest,—what was the earliest form of writing used in Ireland? Were not the Cuchulain tales, which go back almost to the beginning of the Christian era, handed down in writing, and if so, in what form? He decides that the Irish scribes of the 6th and 7th centuries had before them literary materials linking them with the La Tène period, but that these were not written in either Ogham or Runic script. The inscription on the Killeen Cormac stone, which is partly in Ogham and partly in Roman letters, gives him the clue to *the other alphabet* in the form of a letter which he believes to be a modified *gamma*.—Other people have thought this letter to be an R or an N, and if it is Γ , it is an isolated occurrence.—From this letter Dr Macalister infers, by a process of reasoning which the present writer is unable to follow, that 'the beginning of literary tradition among the northern nations' may be dated 'about the 3rd century B.C.',

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and that 'Roman capitals was the alphabet in common literary use in pre-Christian Ireland'. This, could it be proved, would of course be a discovery of far-reaching importance.

In his chapter on 'The Expression of Christian Art', which is particularly good, the author harks back to an old controversy in claiming the Gospels of Lindisfarne for an Irish scribe. He holds that the colophon is mendacious, that if it were true some important Irish manuscripts would have to be re-dated, unreasonably, and that the lectionaries are not sufficient to make the work Northumbrian. There is much virtue in his axiom that no colophon should be accepted which was not written by the scribe himself. On the other hand we may feel sure that, if Eadfrith was the scribe, he was trained by Irishmen at Lindisfarne.

The concluding chapters on Scandinavian and Medieval Ireland have many just and illuminating passages. Irish architecture from the 13th to the 16th century has (apart from ecclesiastical architecture) been little studied—partly because so much of it has been destroyed,—and Dr Macalister's analyses of influences and his classifications of very unruly material are most useful.

The faults of the book are the unnecessary digressions and illustrative anecdotes. There are allusions to corpse-factories and other horrors of the late war, to 'the repulsive practice of shingling', to 'children who have the misfortune to be the offspring of hygienic faddists', an excursus on the evils of slang and of such 'abominable words' as 'bus' and 'cab' in the English language, philippics against modern civilization, and long anecdotes from the history of Cologne cathedral and the 'King's Mirror'. Such interpolations, which are frequent, only confuse and irritate the serious student, and are likely to give the casual reader quite a wrong impression of a work which, archaeologically, is of great importance. The numerous tirades on the vandalism of farmers and the ignorance of amateur archaeologists and the long extracts from Irish tales, though usually irrelevant, are not quite so obviously so.

It is very much to be regretted that the work is so poorly illustrated. With 389 pages, it has only 16 plates, 22 illustrations and no maps at all. A book on such a subject and of such importance requires at least four times that number of illustrations and one map; in this matter the publishers have not done justice either to Professor Macalister, Irish archaeology or themselves.

E. LYNAM.

THE ROMAN WORLD. By VICTOR CHAPOT, Professor at the École des Beaux-Arts. Translated by E. A. PARKER. London: Kegan Paul 1928. pp. xvii, 444, with 2 illustrations and 12 maps. 16s.

A series so ambitious as Mr Ogden's *History of Civilization* may be expected to contain books of various degrees of merit. Of the volumes which we have seen so far, this translation of *Le Monde Romain* appears to us to be among the best. It is no mean undertaking to attempt a coherent description of the *Orbis Romanus*, a subject so extensive and diverse that no one since Mommsen has hitherto made an adequate attempt to deal with it; especially in view of the great mass of new material which has accumulated since the publication of *The Roman Provinces*.

Professor Chapot's object is to present to the reader a comprehensive account of the Roman Empire in which, while the general outline is clearly marked, every detail shall have its full value. He regards the history of the Empire as divided into three phases: the first, in which Rome preyed upon the kingdoms of the East; the second, in which

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she governed them, and other provinces, reasonably ; the last, in which her dominion gradually but inevitably declined. Roman power, he points out, was extended at first by defensive campaigns, and though Imperialism became self-conscious under Julius Caesar, then, and later, security was the first consideration ; every extension of frontier led to the acquisition of a protective zone beyond the new territory, so that expansion was automatic.

The book falls into three parts : a preliminary sketch of the expansion of Rome and its vicissitudes, from 146 B.C. ; a summary account of the machinery of Government, and a description of life in the Provinces.

This last and most important section is nearly three times as long as the other two put together, and contains in every case valuable information as to the natural conditions of the province, its organization, and the general effects of Roman rule. The chapter on Egypt, owing to the exceptional amount of evidence which we now possess, is longer and fuller than the others ; the account of Gaul is perhaps the best. Here M. Chapot considers that Rome really succeeded in the task of unification, and emphasizes the lasting effects of Roman civilization. In the case of Britain, material is scarcer, but the author uses it well. He wisely refrains from committing himself too deeply as to the purpose of the *Vallum Hadriani*.

Under the head of Finance we hear a good deal about sources of revenue, but comparatively little about expenditure. The financial policy of the Empire was not based on sound principles, and the falling off of industry in Italy itself, the centre of the Empire, was bound to lead to a crisis. Of this, and of other causes of decline, we hear but little in detail ; but it would seem that M. Chapot has passed lightly over such subjects because they have been, or will be, more fully dealt with in other volumes of the series.

A few inaccuracies may be excused in a book of this size ; by a curious slip the date of Caesar's murder is given as 43 B.C. ; the spelling *Catoech* is probably due to the analogy of *cleruch*, which occurs in proximity to it. Some French measures are unfamiliar to English readers ; we have some idea of a litre, but very few of us know the value of a hectare in terms of acres. The index might with advantage have been fuller. These are but minor defects which do not detract from the great value of the work as a whole. In conclusion, the bibliography is good, and the printing and general appearance of the book are superior to those of the French edition.

J. F. DOBSON.

FROM MAGIC TO SCIENCE. By Dr CHARLES SINGER. *London : Benn* 1928.
pp. 274, *122 plates* (14 coloured). 25s.

This is a most beautiful book, one of which any author and any publisher may well be proud. It appears *en grande tenue* as becomes a work no longer an *ingénue*, but one that has reached maturity and been found worthy of the best outfit.

The collection of essays here revised have all appeared before in various publications, and their inclusion in one volume is not only a convenience to those who wish to read them, but also gives us a book through which one theme runs continuously.

The first essay on 'Science under the Roman Empire' begins, as all accounts of Western civilization, whether devoted to history or thought should begin, with Rome. It is followed by the chapter headed 'The Dark Ages and the Dawn of Science', which deals with that all too little investigated subject, the debt of the Latin West to Arabic learning : with a clear account of the chief channels by which it reached western Europe.

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A description of the work of the Friars in adding to knowledge, and an estimate of the importance of the recovery of Aristotle's writings, are concluded with a summary of the scientific work of Roger Bacon. This ends with the following sentence: 'summed up, his legacy to thought may be regarded as accuracy of method, criticism of authority and reliance on experiment, the pillars of modern science'.

From this point Dr Singer passes on to the scientific thought of the Renaissance, and gives a most useful summary of the contributions to scientific knowledge of the Humanists; each is prefaced by the dates of the author considered. This list only ends with Bacon, Copernicus and Vesalius.

The third essay deals with 'The Lorica of Gildas the Briton, a magical text of the sixth century' and is the history of a wonderful oath. The main interest in Dr Singer's comment on this protective incantation is that he shows it to be perhaps the earliest link between the Celtic and Anglo-Saxon languages and cultures. The same point arises in the next essay on 'Early English Magic and Medicine', where the sources of the medical lore of the dark ages are most carefully analyzed, while the thesis in the text is ingeniously corroborated by the excellent illustrations.

The chapter on 'Early Herbals' from classical to modern times, has the most entrancing illustrations, perhaps, in the whole book, and that is saying a good deal.

'The Visions of Hildegard of Bingen' is a study of the philosophical writings and theories of an abbess of the twelfth century. It is with her views of the material world that Dr Singer chiefly deals, and it is interesting to see how her ideas were modified as time went on by the fresh knowledge that came her way. The illustrations, facsimiles from the pictures in the Hildegard manuscripts, showing, for instance, the medieval conception of the soul entering the body of the unborn child, are intensely interesting.

The last essay, on the school of Salerno, largely the work of Mrs Singer, is a critical unravelling of the true from the false in the legends that have collected round the origins of this famous medical school. It is surprising to learn that the Dame Trot of our nursery days had an Italian origin, but disappointing to find that Trotula, the lady, was really only a man, one Doctor Trottus, whose works were commonly known as the Trotula.

Alike to the student of the Middle Ages, and to the general reader, this book is a mine of new and significant facts, and fills up some of the gaps that remain in our knowledge of the period between the civilization of the Roman Empire and that of the Middle Ages from the twelfth century onwards. If the page as well as the plate or figure number could be given when illustrations are referred to, it would be a great convenience to the reader, but that is a minor fault found in most illustrated books, and can be forgotten in the many delights provided by this fine volume.

DIANA PORTWAY DOBSON.

POIGNARDS, RAPIÈRES et ÉPÉES DE L'ÂGE DU BRONZE. Par LÉON COUTIL.

Extrait de *L'homme préhistorique*, *Années* 1926-28. pp. 99 and 33 plates.

No doubt many archaeologists will expect something new in this comprehensively-titled work from the pen of M. Coutil, who has long been known for his researches on the Bronze Age in Normandy. In its variety of illustrations it does, indeed, present an original aspect, but when it is said that they are generally inadequate and occasionally inaccurate, and that the text is both lacking in originality and extremely confusing, it will be realized with what disappointment one reader, at any rate, has put it down. It is impossible to see wherein lies the value of some of the agglomerations of types figured; and even when some uniformity of type is discernible, the method used in classification

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seems to be based on typological detail with little reference to time or place. The author excuses himself as having had, as the work grew, to intercalate specimens in his original plates, and to add others, so that, apart from the incongruity, the plates are sometimes numbered wrongly in the text; but what excuse can be offered for referring (on p. 4) to one sword as type 5 (plate v, fig. 15) and on the same page, to the same sword (so far as can be made out), first as plate iv, fig. 15 and then as type 15? The illustrations are on varying scales, indicated by means of figures representing the actual lengths of the weapons printed alongside; but the figures are sometimes missing and frequently illegible. They are repeated, however, in the explanations of plates which occur here and there throughout the work.

On plate viii, 14, and also on plate ix, 3, is shown a peculiar type of sword from Pressigny-l'Orgueilleux (Eure) said to have been found in a tumulus (p. 49) and to be housed in the Musée de St. Germain (it is marked in the sword-figure as Coll. de Palligny). We take this to be the same sword as that illustrated by Coutil himself in the *Association française pour l'Avancement des Sciences* reports, Rouen, 1921, but it differs from it in important details and also fails to comply with the *cast* of a significantly similar sword from Pressigny (found in the Seine) in the French National Museum. Alongside this (plate iv, 13) is an interesting and very rare (because complete) example of a type of sword found in northern France and south-eastern Britain, with a fine carp's-tongue point: it bears the legend 'Dans la Tamise (British Museum)', but a thorough search has failed to reveal its presence in the cases of the Museum. The latter part of the work is mainly a reproduction of Naue's plates, and seems to bear little relation to what has gone before. It is impossible to summarize whatever scheme of classification the author may be following. There are short additional notes on, and illustrations of, Hallstatt swords and daggers, abnormal types, sheaths, and haft decorations; and, throughout, numerous misprints. ESTYN EVANS.

DIE STELLUNG DER SCHWEIZ INNERHALB DER BRONZE ZEITLICHEN KULTUR-GRUPPEN MITTELEUROPAS. Von GEORG KRAFT. *Anzeiger für Schweizerische Altertumskunde*. Neue folge XXIX (1927) 1-4; XXX (1928) 1, 2. pp. 82. Abb. 15. Taf. XII.

We owe these articles on Bronze Age Switzerland to the desire of Dr Kraft to pursue various questions raised in his well-known researches on the Bronze Age in South Germany. Though not so full or conclusive as one would wish, the series is of great interest and cannot fail to rank highly among comparative archaeological studies. The author took as his starting point, he tells us, the work of Keller and Viollier on the late Bronze Age graves (section B), thence looking before and after and studying the earlier stages (section A) and the pile-dwelling culture (C). An analytical summary will, it is felt, be more fitting than a critical review.

The general introduction deals briefly with the space-relationships of prehistoric Switzerland. Emphasis is laid upon the importance of communications over the relatively open Alpine passes of the Bronze Age. A mountain system frequently offers, by virtue of its roughly symmetrical structure, similar settlement-controlling conditions on both sides; and in detail as well as in general (the 'Lombard' flanged celt is cited) the north Italian Bronze Age is allied to central European cultures rather than to Mediterranean groups. Three provinces are sketched; the northern Mittelland, open to east, west and north; west Switzerland, adjoining the great south to north corridor of the Rhône-Saône; and the Alpine territory communicating with upper Italy. (The Swiss

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Jura are ignored because of their archaeological poverty ; and one cannot but remark on the contrast with the French Jura).

A. Culture movements in the early and pure Bronze Ages.

Finds made in the Valais show from the beginning both eastern and western influences, blending, and later giving way to native inspiration. Eastern forms are seen in the *Osenhalsreif* (ingot torque) with rounded section, and in the predominating *Kopfröle* (roll-headed) pin, from which the clover-leaf and disc-headed types develop. In the Mittelland, the bronzes are of Bohemian form, while Vaud and Gruyère have mixed inventories. For western traits, Viollier has shown the first metal objects in the pile-dwellings to be of Spanish affinity. Several halberds from the Valais are figured. More frequent is the small triangular dagger of western type, which may have reached Switzerland by way of Hungary or Bohemia. Descriptive details of grave-finds follow, and a relative chronology is established by stages in the evolution of the flanged celt.

The older graves of the Mittelland contain objects paralleled in the south German tumuli, but the culture group is not 'exclusive', objects as well as burial rites varying considerably. Type-objects of periods B, C, and D are illustrated (pls. VI and VII) from the burials of Rümlang, Eschheim, and Thayngen (among others) respectively. Celts with stop-ridge, of western pattern, occur sporadically in eastern France, the Rhine valley and western Switzerland during the middle Bronze Age, and Dr Kraft thinks it was this type which, combining with the winged axe of the tumulus culture, produced the *Lappenabsatzbeil*, i.e., the common 'winged palstave' of the pile-dwellings.

B. The late graves of northern Switzerland.

Two type-burials are examined : those of Mels (St. Gall) and Oberendingen. The first group have poppy-headed pins (*Mohnkopfnadeln*) as a characteristic feature, while all the bronzes tend to be 'baroque' in style. Varieties of the true poppy-headed pin (which does not strictly correspond to what the French sometimes call the *épingle à tête de pavot*) are described and their distributions outlined. Their point of origin is North Italy, but other associated bronzes, bracelets and neck rings have parallels in upper Bavaria and Hungary. Knives are common, and their mention leads on to a useful summary of the evolution of the bronze knife in Central Europe. Pottery is so restricted as to yield no conclusive evidence of its affinities. Graves of the Oberendingen type are, like those of Mels, after cremation, usually in flat burials ; and the type-object is again a pin—named after the Binningen (Basle) site—with rounded head and a neck marked by horizontal ribs. Similar pins are common in the pile-dwellings and in the south-west German urnfields, where also the bracelets of twisted form and the small bronze rings have numerous counterparts. The Oberendingen burial yielded three small pots and a large urn with cylindrical neck having Hallstatt affinities in both form and colour. This urn-type was evolved from the Early Bronze Age Aunjetitz urn in the old Austria-Hungarian territory.

Sword-burials (male) of the type of Rixheim and Monza are next treated. Both the Rixheim sword (*Déchelette's Épée à languette*) and that of Monza are found in flat graves, either by inhumation or cremation ; and the former is also known from isolated finds. It probably evolved in upper Italy from the copper dagger. The Monza sword is tanged, but the blade itself is exactly similar to the Rixheim type—slender, with a semi-circular midrib marked off by parallel lines. Graves of the type of Basle, with *Griffzungenschwerten* (Naue II), receive brief notice ; the first appearance of a 'leaf-shaped' (though actually straight-bladed) sword in the area is worthy of fuller treatment. Associated objects compare with those found with the Oberendingen burials.

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The 'baroque' pins of Mels are contrasted with those of Binningen; and the contrast between these two cultures is further illustrated to show that it corresponds to a fundamental differentiation of style between Bronze D and Hallstatt A. Herein too, lies the distinction between the sword-burials of types Rixheim and Basle; the first are contemporary with the Mohnkopfnadeln graves, the second with the Binningen burials. While the former pins are not found in their typical form in the south German urnfields, the latter type is widely represented there. The conclusion, based on typological as well as general considerations, is that while the Mels-Rixheim culture has north Italian affinities, the Oberendingen-Basle group is closely related to the north-east Alpine cultures. That there was actual movement of peoples is claimed on *a priori* grounds and supported by evidence such as the increase in the custom of hoarding bronzes and of building fortified dwelling places, and the decrease in the amber trade with the last phase of the Bronze Age, suggesting a period of unrest. Two consecutive immigrations are called for; the first came from upper Italy, reaching the Rhine valley and receiving upper Bavarian elements, to be pushed further down the Rhine, out of Switzerland, with the penetration of the Oberendingen people from the northern part of the east Alpine territory, bringing a culture which gives the entire early Hallstatt civilization of south-west Central Europe its character. Finds of mixed inventory and facts of distribution are rather inconclusively discussed in this connexion. In ending this section the author has some interesting general observations to make. The zone north of the Alps (to use Reinecke's phrase) has two culture poles, east and west. Radiating influences from the east include elements of the Lausitz culture, illustrated in a vase from Zurzach (fig. 8). Then the Oberendingen urnfield group spreads west at the beginning of Hallstatt A, through southern Germany and northern Switzerland to eastern France. Mycenaean traits, coming by way of Hungary, are hinted at in the gold-leaf of Binningen and in the guards of the Möriken sword.

Section c deals with the Bronze Age pile-dwellings, the culture of which represents the western pole referred to above. Chronologically it falls almost entirely into Reinecke's Hallstatt A and B, with some Bronze D; *i.e.* in Déchelette's period 4. But bronzes from the Limmat (Zürich-Letten) include middle Bronze Age forms; and the outlets of Lakes Geneva and Constance similarly yield types of all periods. In the famous lake-stations, middle Bronze Age types are almost entirely wanting; but this interesting contrast is not pursued further; we are merely told that 'profitable information on climatic questions may be expected'.

The Mohnkopfnadel is rare, but the commonest pile-dwelling pin, which, it is suggested, might be labelled the Pfahlbaunadel, has a large spherical or pointed head and a smooth slender stem, and its decoration occasionally recalls the horizontal 'banding' of the poppy-headed pin. Derived forms of the Binningen pin, found in its original form at Möriken, are not uncommon. Five other 'eastern' varieties of pins, including the Vasenkopfnadel, are mentioned. Typical urnfield bronzes, though decreasing westward are found in west Switzerland, and the cylindrical-necked urn turned up in plenty at the Alpenquai (Zürich). But we must look to the west for the origin of such characteristic features as the spherical-headed pin and line ornamentation. West European culture traits are seen in Switzerland from the Early Bronze Age, and are further evidenced in the occurrence of palstaves. Special types of axes are also found in the western lakes, and while the entire lake culture is strongly unified, it is to be observed that the beautiful hollow bracelets do not occur in the east, perhaps for economic reasons.

In pottery and bronzes, Western forms are distinguished by smoothness of form and

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by line ornamentation. The baroque style of both the northern and eastern culture-centres stands out in marked contrast. The smooth surfaces are decorated almost exclusively with straight lines, or concentric circles disciplined into rows; naturalistic ornament is quite absent. The contrast between the straight line (w) and the spiral (E) ornament is traced back to the late Neolithic period and the persistence of the western ornament shown to be related to pottery shapes.

The problem of the western culture was the assimilation of the eastern; but once achieved the amalgamation was very successful. There were later Italian contributions, too, as occasional horse-bits and combs, etc. show. An analysis of the indigenous style-phases follows. Bronze D is represented by some objects of the older urnfield group (Mels-Rixheim), which also fill the transition to Bronze E (=Hallstatt A). Then comes the Blüteperiode, with its large hollow-headed and its minute vase-headed pins; and comparisons with the rich urnfields of the Rhine valley fix the date as Hallstatt B. Iron, already in use as inlay material, now begins to be used for pins and sword blades. Two clearly defined groups of pottery are distinguished: black ware with white incrustation or tin inlay, and red and black ware. A detailed analysis of the conjectured colouring processes is here interpolated. The red and black pottery is roundish and has furrowed ornament on open surfaces, and the contrast between this and the black ware, with its line ornament, is shown to be the contrast between Hallstatt B and Hallstatt A. A change of style is also seen in the bronzes—at first smooth and massive, later hollow and richly decorated—though these are naturally more conservative.

Recapitulating, Dr Kraft emphasizes the significance of the geographical location of Switzerland, open to influences from east and west—a region where cultures of varying traditions have fertilized each other, living together yet retaining a measure of individuality. When reoccupation of the lake shores took place with the appearance of the older urnfields (Mels-Rixheim), the villages were placed farther from the present shore than the Neolithic stations. The next stage (Hallstatt A) begins with the penetration of the newer urnfields (Oberendingen-Basle) from the east Alpine foreland; and the high-grade lake civilization, composed mainly of western culture elements (perhaps derived from the Valais) with Italian as well as eastern additions, persisted until the onset of damper climate at the beginning of the middle Hallstatt period. An interesting map shows lines of movements in Europe at the end of the second millennium B.C., and a chronological table presents a useful summary of the Bronze Age cultures in Switzerland and Central Europe, with absolute dates after Montelius, Kossinna, Schmidt, Bosch-Gimpera and Bremer on the one hand, and Reinecke and Childe on the other. Throughout the series is well illustrated, though this applies less to the first and last sections than to section B. The late Bronze Age graves have indeed been well treated, but many aspects of the transition periods are still, as the author admits, not clearly understood.

ESTYN EVANS.

ENGLISH RIVER-NAMES. By EILERT EKWALL. *Oxford: at the Clarendon Press* 1928. pp. xcii, 488. 25s.

The author tells us, in his preface, that all his place-name work has been but a preparation for this volume. A year or two ago those of us who had the pleasure of hearing him lecture on river-names at King's College, London, marvelled equally at the amazing erudition of the lecturer and at the courage that could attack a subject in which so much is, and must remain, obscure. The documentary material is comparatively scanty,

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for the stream does not get into records as easily as the homestead on its banks; the printed records are sometimes incorrect and have to be controlled by a comparison with the manuscript sources, there are very few 'Vorarbeiten' that can be taken seriously; and, most discouraging of all, most of the river-names are so prehistoric that they can often be explained only by conjectural additions to the recorded vocabularies of Celtic, Old English and Old Norse.

Professor Ekwall has adopted a method which all students of place-names might follow with advantage. He has not been satisfied with collecting early forms and giving an explanation based purely on linguistic material, but has motored over the country in all directions and then attempted to reconcile phonetic considerations with topographical features. Thus he finds that his identification of the Hamps (Staffordshire) with Old Welsh *ham-hesp*, summer-dry, is confirmed by the character of this limestone stream, which is what is called in English a Summergil, the second element of which means dry, barren, or a Winterburn. In dealing with names for which no etymon can be found in the linguistic records of the country, he often adduces evidence from Latin and Greek, Gaulish and Germanic to reconstruct what must have perished before our records begin.

The author does not believe that the pre-British element is important. Here some students will hesitate to follow him. Is it not probable that many apparently British names may be corruptions or adaptations of an earlier nomenclature, just as some apparently Old English names are perversions of British originals? If the Anglo-Saxons adopted innumerable river-names from the Britons, why should not the latter have borrowed in the same way from their predecessors? At any rate the number of important names and name-elements for which no clue can be found in Celtic is pretty considerable. For the whole Thames group (Tame, Teme, etc.) we get nothing more immediate than a possible ultimate identity with Sanskrit *Tamasā*, a tributary of the Ganges, lit. dark water; Severn *may* have something to do with a root which appears in Sanskrit *sobar-*, which *may* mean 'milk'; and for Humber (it is astonishing to find that there are, or have been, eleven Humbers in England) a couple of Celtic origins, both purely conjectural, are put forward without any appearance of conviction.

Where the same name is found applied to several rivers a certain or plausible solution can usually be given, e.g. the Celtic elements *dubo-*, dark, and *dubro-*, water, enter into a large number of river-names, and it is generally accepted now that the fairly numerous Rays and Rees represent Old English *ēa* with prosthetic *r-*, resulting from (æt) *þære ēa*. This *ēa* has suffered a curious change in the Lincolnshire fens, where the 'French' name *eau*, applied to feeders of the great drains, is a 'learned' perversion of *ēa*, or of a Middle English *ō*, representing the cognate Scandinavian *ā*. Less certain, but on the whole convincing, is the identification of the many north country and Scottish Calder with Welsh *caled*, hard, and *dwfr*, stream. It appears that the Calders are swift streams. That the various Coln(e)s and Cluns belong together seems pretty clear, but neither the root, nor the suffix (also found in Aln and Calne) can be explained.

Back-formations, some of very early date, are numerous. There are three Cranes, evolved from Cranbrook, Cranbourne, and Cranford respectively. Essex has its Brain and Chelmer, illegitimately inferred from Braintree and Chelmsford, and Sussex its Arun, from Arundel. This was formerly the Tarrant, identical with Trent, representing a British *Trisantōn*. The obscure nature of the problems offered by this field of research is well exemplified in the conjectures enumerated on pp. 417-18 as possible explanations of the above name.

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I have only nibbled at this monumental work, which all students of place-name lore should possess. That the amount of positive result is comparatively small lies in the nature of the subject. The author's aim has apparently been to gather into concise form all the available material, to show what is etymologically certain, and, with regard to the uncertain, to put forward all the possible theories that would occur to the comparative philologist, in the hope that later workers may be able to do something towards selecting and deciding.

E. WEEKLEY.

SOME STYLISTIC AFFINITIES OF BUSHMAN ART. By I. SHAPER. *Reprinted from the SOUTH AFRICAN JOURNAL OF SCIENCE, November 1925. pp. 504-15.*

In view of the coming visit of the British Association to South Africa I have been asked to write a few words about the above paper. Mr Shaper has made a very good *exposé* of his subject as far as the literature before 1925 permitted. The study of South African prehistory is rapidly advancing and since that date it has been found possible to distinguish a number of separate art groups in different geographical areas, and further all the pictures in a given area are by no means of the same age. If Mr Shaper continues his investigations, it will be necessary to take these art groups separately. He is quite right I believe, in rejecting any close connexion between the art found in rock-shelters in eastern Spain and the 'Bushman Art' of the Union of South Africa; I am not so sure he will be so certain in the case of the rock-shelter paintings of South Rhodesia? The paper as a whole forms a very good *point de départ* from which further investigation in the light of recent knowledge can be made. By the way, on p. 508 (p. 5 of the paper) it is implied that outline paintings occur in South Rhodesia but not in the Union of South Africa. Such paintings are rare in South Rhodesia, but do also occur further south—for example at a site near Tylden, etc.

M. C. BURKITT.

MAMMOTHS AND MAN IN THE TRANSVAAL. By Prof. RAYMOND A. DART. *Supplement to NATURE, 10 December 1927.*

This article is of very great interest to all prehistorians interested in South Africa. The finding of two mammoth teeth with Lower Palaeolithic tools in the gravels of a lower terrace of the Vaal river opens new possibilities of investigation and correlation. Of course it cannot yet be affirmed that the beast whose teeth have survived was exactly the same as, or contemporary with, our European mammoths, but further discoveries may throw light on this matter. It is known that South Africa, though outside the range of alternate glacial and interglacial phases, underwent alternate periods of dampness and aridity. Can these be correlated (a) with the undoubted river-terraces of such rivers as the Vaal, (b) with the glacial and interglacial maxima of Europe? Work which is being done in Kenya will help forward the solution of this problem; in the meanwhile the finds published by Prof. Dart are of great importance in this connexion.

M. C. BURKITT.

ESTUDIOS ESMERALDEÑOS. By MAX UHLE. *Anales de la Universidad Central*, vol. xxxix, no. 262. Quito, 1927. pp. 61 and plates.

Dr Uhle writes in detail of certain of the results of the archaeological expedition sent in 1926 to the Province of Esmeraldas by the Universidad Central at Quito, the general account of which was published in no. 259 of these *Anales*. The province had also been explored earlier by Professor Marshall Saville. It lies along the coast in the

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north of Ecuador, and with a damp tropical climate it seems, Dr Uhle says, little fitted for the development of a native culture without continuous help from outside ; ' yet the soil of the Province is highly rich in the remains of ancient civilizations, which in some respects even strike us most highly among all the ancient cultures of Ecuador '. Saville (with whom Uhle agrees) has stressed the importance of the Esmeraldas area for the study of the southward migrations from Central America ; Uhle is also inclined to accept pre-Inca influences from Peru, but not Andine influences, anyhow from Ecuador. Lists are given of the objects found on the various sites examined, among which are great numbers, very many broken, of human and other figures (some of the faces, Dr Uhle says on p. 25, seem to be negro). The biggest site explored was La Tolita at the mouth of the Santiago river : here a section was dug through one of the mounds. The Esmeraldas culture, Dr Uhle concludes, is not a new intermediate type between those of Central America and the Peru region, but only a repetition of Chorotega types, influenced by Mayan, in a fresh area. There were also later Inca influences. Few human remains were discovered, owing, in part, to surface changes in the area (sinking coast line, the effects of winter floods in the rivers).

G. C. WHEELER.

IN SEARCH OF OUR ANCESTORS. By MARY E. BOYLE, with a preface by the Abbé HENRI BREUIL. *London : George Harrap 1927. pp. 287. 10s 6d.*

This book, admirably produced, and with an introduction by the Abbé Breuil, rouses lively anticipations of good things to come in the minds of archaeologists, but though they are not sent empty away, they are fed with so many stones, or rather bricks, that they will suffer from the results for a long time.

In the preface the Abbé expresses the hope that the book will impress on its readers the importance in archaeology of the evolutionary method of acquiring knowledge, and to achieve this the author has adopted the plan of working backwards instead of forwards. *A priori*, such a system has much to recommend it, but in this case it is not a success. The book starts with the time of La Tène III, and travels back to the primary geological era. This programme alone is ambitious for a work of 270 pages. Each period is dealt with separately, but its derivation from preceding ages is not made clear at all, and so the work fails in its chief aim. The illustrations are excellent in themselves, but do not always represent the objects of the greatest importance in the text. Thus the long descriptions of Etruscan artefacts is not illustrated at all, while there are three pictures from Greek vases.

The bibliography is admittedly incomplete, but it does not contain a single standard work on ancient history. This omission may account for some of the surprising statements in the earlier part of the book. Space does not permit of an enumeration of all the discrepancies and inaccuracies which mar this ambitious piece of work, but some of the most surprising must be cited as a guide to the unwary.

On page 35 we read that ' In the year 100 B.C. the kingdom of Etruria was bounded by the Arno, Appennines and Tiber, and by means of their fleet the Etruscans had complete control of commerce in the Tyrrhenian sea, made a treaty with Carthage, held Corsica, and ruled as far as Spain '. This is most surprising : for Roman historians are silent about this phantom fleet, trading with an already destroyed Carthage, and though the *Encyclopaedia Britannica* cites these places as the boundaries of the district of Etruria after the fifth century B.C. it does not mention a kingdom then, and indeed Miss Boyle herself seems to have thought better of it, for on page 85, after a long account of this

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obscure people, she tells us that they were finally crushed by Rome in 283 B.C. This account occurs in the chapter on the *Bronze Age*, which is again remarkable, since on page 80 it is stated that 'the Etruscans worked in *iron*, bronze and copper'. Further, we read that 'at the height of her power Etruria included *almost the whole of modern Italy* in her kingdom, that she divided her territory into three districts, which divisions had a lasting effect on the country, as can be traced through the Middle Ages—down to the present day when Neapolitans are spoken of as foreigners by Florentines or Milanese'. This statement gives a remarkable importance to the Etruscans, and it is hard to see how these old arbitrary divisions can have withstood the unifying effects of centuries of Roman rule, the disintegration caused by the Barbarian conquests, and the rise of the City States and kingdoms of the Middle Ages and later. Another important omission from the bibliography is Mr Kendrick's book on the Druids, so we are not so very much surprised to learn first that though 'strangely little is known about the cult of the Druids' yet this book contains many facts about the intimate details of their life and organization. These occur first in the chapter on La Tène III, and then in the chapter on the Neolithic Age. Here the author is dealing with megaliths, the alignments and dolmens of Brittany, etc. and tells us that 'It is quite probable that the Celtic people owed almost all the technical knowledge which they must have possessed to deal with such huge blocks of stone to this priesthood, whose schools were in Britain and Ireland, schools which remained practically undisturbed in these countries till they blended with the great abbeys of the Middle Ages'. Thus we can gather that the Celts, taught by the Druids, were responsible for all the stone monuments, and that the Druids held sway from Neolithic times until the Middle Ages. How they placated the Saxons, pagan or Christian, and withstood the Medieval Church, we are not told.

Further light is thrown on the origin of dolmens on page 83, where we read a description of Etruscan tombs, which ends thus:—'When the earth happens to be washed or worn away from the coverstones of these tumuli there is a striking resemblance between them and the cromlechs of Britain and Brittany; the supporting stones on either side bearing up the coverstone form a dolmen, which may have inspired the ones with which Western Europe is so well acquainted'. Lake villages are well described in the course of the chapter on Neolithic times, but here again we lose all confidence in the writer when we read that 'Glastonbury is the principal lake-village known in England. Though it belongs strictly to the dawn of the Iron Age, in a district which had no copper period in equipment, it is similar to the Swiss settlements—indeed the Neolithic slipped so gradually into the Iron Age that it is often difficult to find the dividing line'. Glastonbury is usually ascribed to the end, not the beginning of the Iron Age, the brooches belong to the La Tène epoch, and though it is difficult to know exactly what is meant by Neolithic, yet in Somerset at any rate, there are very distinct traces of a Bronze Age intervening between megaliths and the Age of Iron.

Further quotations cannot be unduly multiplied, but mention must be made of 'a barrow on Silbury hill'; of the Magdalenian tools described as 'flint screwdrivers for leverage'; this may be the kitchen use of a screwdriver but it is hardly that of a carpenter, and it is hard to see what a people without screws wanted with screwdrivers; of a tool 'called by the French a burin and the English a graver, and of which there are two types, one useful as a screwdriver and the other as a gouge.' Then why do we call it a graver?

To get back to Aurignacian times. Miss Boyle tells us that in early Aurignacian days the lemming lived in the caves on the banks of the Danube, *and later* moved northwards.

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If they did so they must have met their close relations who had been in Jersey in Mousterian days. On the same page we find that 'the giant deer disappeared in Aurignacian times'. How then was it found in Ireland as late as the Neolithic period? 'Mousterian man had quite modern teeth'. This is not quite the usual opinion, and again most authorities do not know of the beast called 'Hyperopithecus', or that 'The American scientific expedition to the Gobi desert noted that camels made quantities of eoliths when on the march' though here the error is chiefly of definition. Further, when we meet 'the existing tarsan ape of New Guinea' we think that Miss Boyle has been reading contemporary fiction, and last, but not least, it is annoying to those people who spent part of their youth reading of muggers and trying to catch lizards to be told that 'We are accustomed to think of reptiles as having no feet'. Miss Boyle has undertaken a very great task with much courage; she has succeeded in part, but before she brings out a second edition she should purge her book of its inaccuracies and errors.

DIANA PORTWAY DOBSON.

AIR-PHOTOGRAPHY AND ECONOMIC HISTORY; the evolution of the cornfield.

By E. CECIL CURWEN. *Published by the Economic History Society and to be obtained from The Students' Bookshop, Ltd., London School of Economics, Houghton St., Aldwych, W.C. 2.* 1928. 31 pages. 1s.

At first sight it may seem that there is very little in common between air-photography and economic history. Actually, we think, the connexion is a little forced, but that has not prevented Dr. Curwen from producing an admirable and most readable pamphlet. It may be said to have grown out of Dr. Curwen's article in *ANTIQUITY* (II, 168-72) but it should not be imagined that this pamphlet is merely a *réchauffé* of the article. The method of treatment is different, the whole subject of early agriculture is considered, and there are several additions and some valuable new conclusions. In particular Dr Curwen gives a representative list of sites where ancient fields, both Celtic and English, are to be seen.

A REPORT ON THE PUBLIC MUSEUMS OF THE BRITISH ISLES (other than the National Museums). By SIR HENRY MIERS, F.R.S., D.SC., to the Carnegie United Kingdom Trustees. *Edinburgh: printed by T. and A. Constable.* 1928. pp. iv, 213, and 8 plates.

The Carnegie Trustees are warmly to be commended in calling for a report on the provincial museums of the British Isles, on which Sir Henry Miers has concentrated his industrious research. It is a sufficiently disquieting document, as may be seen from the two following extracts.

There is scarcely a general museum in the country that is really well arranged, well housed, provided with the necessary storage and work rooms, and adequately staffed. (Page 26).

Most people in this country do not really care for museums, or believe in them. (Page 80).

The indictment is a two-edged one; neither the museum nor the public for whose benefit the museum is maintained leave the court without a stain on their characters.

The Board of Education has constantly expressed pious opinions about museums as factors in education. Sir Henry Miers has done more than this; he has himself visited something like 500 museums, and noted on the spot their good or bad points. When he

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speaks therefore he is no mere theorist but one who doubtless has seen very dreadful things.

In a certain museum—not by any means the worst—the following objects were all met in a single case, 12 inches by 24 inches: a Saxon brooch, a few feathers, several geological specimens, and a couple of fossils. By the fireplace were two beautifully-carved stair heads; on the top of one reposed a Russian helmet and on the other a Roundhead casque. (Page 39).

Can we wonder with such things so prominently before his notice that Sir Henry Miers somewhat bitterly concludes:—

In spite of certain noteworthy exceptions they fail—and fail lamentably. There is no doubt that the country is not getting what it should . . . and that most of them are not going the right way to supply what is wanted. (Page 38).

Having disposed of the past he looks forward to the future:—

The present museum situation may not unjustly be summed up by saying that for several generations collectors and curators have devoted much labour to the making of museums, but that the time has now come for a new generation to consider how to use them. (Page 73).

No one will venture to dispute this conclusion; but as museums differ so enormously in type, methods of upkeep, and general outlook, it is impossible to lay down any firm line of procedure. There must be constructive effort. No museum should exist which has not a full-time skilled curator, with assistance, workshop, and adequate remuneration. When these things have been achieved reforms can be looked for, but until then, very much contained in the report under review partakes of the nature of pious aspiration, and Sir Henry Miers is not ashamed to admit it.

A great effort and a very large expenditure are required to set the whole service in order and to supply deficiencies. (Page 79).

We are driven therefore to the conclusion that the report deals with the ideal, but it gives us figures and facts which justify its conclusions.

Museums can be grouped into classes according to the manner of their upkeep and maintenance. There are 267 municipal museums on the rates. These are not all pure museums: some form an adjunct to the public library, others are linked to an art gallery, and yet others are unequally yoked to both library and art gallery. Can it be said that the museum gets fair treatment when run as a side line of a library, art gallery, or both?

We learn from the report that the contents of municipal museums are not all that they should be. In many cases collections of any kind have been accepted because they were to be had for nothing; and the committee could not resist the temptation of getting something for nothing, no matter what it was. After all what can be expected from Corporations, except the very large ones? What sort of a committee can a Corporation assemble to manage a museum? There are instances where outside members are co-opted, but the final word rests with the Corporation, and not with those who do the work. Rate-aided museums have to submit estimates, and are seldom allowed to make savings for emergencies. In this way they live from hand to mouth.

In the next category come the 'Society' museums, 76 in number. These are scientifically an important group; they contain collections usually made locally by those who knew something of their subject, and are directed by qualified men. Such collections are the raw material for much important work. But these museums are in sore straits:—

Those learned societies which maintain museums rarely have sufficient funds for the upkeep of their buildings and collections . . . and most of them have sought,

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or are prepared to seek, assistance from the rates. Over forty have given up the unequal struggle and have passed into the hands of municipalities. (Page 18).

After all the whole question of museums is bound to revolve round one pivot, the curator. Only a few of our museums have efficient curators. We find secretaries, headmasters, and park superintendents engaged in curatorial duties. There are part-time curators who put in a few hours weekly, and there are honorary curators who may be either busy men with other occupations or private individuals who loyally devote themselves to their work. Honorary curators are a great asset to a museum, but neither they nor the part-time curator can cope with the requirements of a modern museum.

As a museum grows the principle of honorary or a part-time curator becomes more and more hopeless . . . Proper supervision and direction cannot be assured. (Page 49).

Finally comes the alarming statement that fifty museums have curators without any qualifications. Reviewing the position Sir Henry arrives at the following conclusion :—

Only in a dozen or so [museums] is there a full-time competent curator with an adequate staff. (Page 22).

And what is the cost of our museums ? The total expenditure for the British Isles, including the great National collections, is £1,200,000. More than £450,000 is spent in the provinces. Whether the return in public service is adequate in view of the enormous amount of magnificent material they contain, remains to be considered.

But the report is not entirely destructive in its criticisms ; it contains much that is constructive and Sir Henry Miers sets himself to analyze the demands made upon the museum. As he sees the question, they come from :—(a) the man in the street ; (b) the schools, elementary and secondary ; (c) the student, and research worker.

The Man in the Street comes merely in the spirit of curiosity ; for him the museum should cater generously. His taste needs to be cultivated, and his investigations directed. The demand of the schools is educational and should be met by the museum staff directly ; or by a special teacher trained by the museum. Lastly comes the student, who as a rule is left to himself. The usual museum staff of one is already too fully occupied. This fact seems to be recognized by the Board of Education in its report on adult education (1927), where it is stated that ' No practical scheme has emerged for utilising museums in adult education '.

Like Mr Micawber the Board is ' waiting for something to turn up '.

As arsenals of research the museums of today are painfully crippled. The demand is urgent, the means are not forthcoming for rooms and fittings, with staff in charge. Indeed the complete answer to the entire report is contained in a single word—money.

At the moment we are told that the Carnegie Trustees are not entertaining the idea of grants to museums. Sir Henry Miers assures us that it cannot be a matter of Government grant ; where then is the money to come from ?

The report suggests that County Councils should provide for museums in England, and specially in rural areas. This is a little surprising after the plain words already used in dealing with the municipal museum. Is it supposed that any special virtue is inherent in the County Councillor, which does not exist in the Borough Councillor ? The problem would remain the same ; the managing body would still be an inexperienced one, with co-opted specialists who would do the work, and be financially at the mercy of the Council. The suggestion bristles with difficulties : as to the town where the museum would be established, its staff, buildings, and maintenance grant.

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However good or bad museums may be, they are the result mainly of private enterprise. Many have trust deeds which regulate their existence. If the County Authority were to take over existing museums they would require representation on the committees of management; it might want to dictate policy, or even alter the scope of the original foundation.

The report discusses the question of loan collections of museum specimens. There is much to be said in theory for this, but in practice difficulties present themselves. It is only right that no standard and figured museum piece should ever be allowed to leave its museum. Such fragile pieces as Bronze Age urns, porcelain, glass, and the like should never be submitted to the risk of continual movement. Much also is said of travelling museums for schools. The proposal is attractive, but each collection so sent out on its travels would be better with a skilled man in charge. Some stress is laid upon the importance of museum lectures of a popular nature. It is not so much the lecture as the type of lecturer that is important. The specialist only too often succeeds in wearying his audience. Good, popular lecturers on museum subjects are few, and need to be paid for their services.

What then is the situation today? The best provincial museums are the children of two or three generations of private collectors. The amount of good material so got together is undoubted but it needs careful and thorough investigation. Quite a number of museums are bringing their collections into a state of efficiency, but are hampered by lack of funds. Collectors nowadays sell their collections quite as often as they present them to the public.

Yet Sir Henry Miers says that 'the time has come for a new generation to consider how to use museums'. Example is better than precept; we do not want the new generation to consider how to use museums; we want them to put a little spade work into the vast mass of material that exists, to get down to the making of catalogues, and to relieve the overburdened curators. It would be pitifully easy for the new generation to break up existing collections, the work of years, but can it re-build them? There are plenty of men of the old generation in museums, unappreciated, without encouragement, who could reconstruct our museums if only they were given the opportunity and the means.

The report advocates the establishment of Agricultural and Health museums. Here is an excellent outlet for the new generation which is to reform our museums. It is a virgin field, and it would be interesting to see how the problems of establishing these museums would be faced.

But even Sir Henry Miers is not without his doubts, for he says:—'the foregoing proposals represent an ideal difficult of attainment' (page 80); and having said this he enunciates the bitter truth:—'Most people in this country do not really care for Museums or believe in them' (page 80).

Exactly! What is to be done then? Sir Henry suggests:—

- (1) That towns with a population of over 20,000 should start museums. This means an extension in some measure of the 'Public library—Art gallery—Museum' system.
- (2) That County Councils should do likewise in the counties.
- (3) That external bodies should make grants for approved purposes: buildings, purchases and salaries.

The most illuminating comment on the last proposal is the statement by the Carnegie Trustees that 'applications for museum grants are not being entertained by them'.

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The report is an invaluable document, because it shows what is wrong with the museums today. It is outspoken, and merits consideration. Will it receive the consideration it deserves? And if it does will the committees concerned be in a position financially to do more than they are doing at present? FRANK STEVENS.

FROM TRACKWAY TO TURNPIKE. By GILBERT SHELDON. *Oxford University Press*. 1928. pp. viii, 178, with 3 maps. 10s 6d.

Books on the subject of roads have a fascination for most people, possibly because even the most sedentary are would-be travellers. The earlier history of ancient roads is gleaned only by much field-work and careful archaeological study, while their later history, if they have continued in use, lies hidden for the most part in old diaries, letters and such-like records for those who will to ferret out for the benefit of others.

Mr Sheldon has attempted an intensive study of the roads of east Devon, and has produced an interesting book packed full of information for which he gives chapter and verse, but the number of pages of which can afford no inkling of the great amount of labour he has expended in obtaining his material. This book is, even when it treats of prehistoric roads, essentially a compilation of extracts which the author never fails to acknowledge. It is for this reason that the earlier chapters are not the best, for that portion is of necessity chiefly surmise; the remainder consisting of contemporary and presumably accurate records.

When there are so few faults to find with a book, it is as well to mention them early. Mr Sheldon is apparently one of those who cherish the strange idea that there are two kinds of barrows—'sighting' and sepulchral. But there is only one kind of barrow, and that is the sepulchral. No one speaks of 'sighting' cemeteries or 'sighting' hotels because they happen to be by the side of roads. The author suggests, on account of the terminations in the words Woodbury and Sidbury that those camps were occupied in Saxon times. This is most probably untrue, and the method of deduction is unsound, for the Saxons gave such names as 'Posses Hlaewe' to barrows that certainly did not contain the remains of contemporaries.

But this is an excellent book and makes enjoyable reading. It treats of the rise of Exeter in Roman days when it was a frontier stronghold. The manufacture of cloth and its position on the higher reaches of a navigable river continued its importance. It was early a road centre. Later as a centre of industry it caused new roads to be focussed on it, and, after its eclipse as a centre of trade, these roads continued the prosperity of the city, now a great junction for traffic during the coaching days. The means and conditions of travelling from the earliest times to the end of the great coaching days are fully described with many interesting details. We can watch the growth of the roads at the hands of roadmakers who never looked ahead but made them sufficient only for the needs of the time. We can trace the influence of industry, the seaside habit, wars, the postal service, and competition between rival transport companies on the ways of communication. We can learn how the postmaster leaning out of his bedroom window 'in his nightcap exchanged bags with the guard by means of a hooked stick', and how the 'Scrippy' raced the 'Defiance' from Exeter to London, covering the distance in thirteen hours, and how she ran over a flock of sheep in the process. If we want to learn all there is to learn about butterflies, cabriolets, curricles, gambadoes, post-chaises, sledges, trucamucks and stage-waggons, or the correct coin to give the guard, we can find it in this book. We hope Mr Sheldon will make a similar survey of other districts where the geological conditions are different and the evolution of roads took place along perhaps different lines. R. C. C. CLAY.

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MAP OF ROMAN BRITAIN. Scale : 16 miles to one inch. *Published by the Ordnance Survey, Southampton. Second edition. 2s 6d ; in covers 4s on paper, 5s on linen.*

The second edition of this map is in many respects an improvement upon its excellent predecessor. From this it differs principally by the indication of aboriginal woodland (restored upon a geological basis); by the inclusion of almost the whole of Roman Scotland as an integral unit of the map instead of as a mere inset ; and by the insertion of sites of native villages known to have been occupied in the Roman period. In spite of these very considerable additions the new map retains the admirable clearness and simplicity of the old.

The restoration of natural woodland adds materially to the interest of the map. The general relationship of the Roman settlements to the physiographical features of the countryside is, of course, well-known, but is now for the first time illustrated on a comprehensive scale. The road-system, being built and maintained by a strong and wealthy administration, was rarely diverted by local obstacles except in mountainous regions ; but, away from the main roads, the Romanized farmer cared little more for the labour of clearing undergrowth than did his prehistoric forbears. Thus the forested areas of the midlands and, above all, the weald of Kent and Sussex are almost devoid of Roman ' villas ', whilst, at the other end of the social scale, the downs of Wiltshire continued to support the less Romanized native villages in their old environment, essentially unchanged by the Roman occupation. The importance of these native villages, is now, in consequence of Mr Crawford's discovery of their associated agricultural systems, more fully recognized, and they must henceforth claim a permanent place on the maps of Roman Britain.

Other points leap to the eye upon a map of this kind. Two examples will suffice. The Peddar's Way, which runs (to all appearances) blindly to the Norfolk coast on the eastern side of the Wash, missing the fort at Brancaster by about five miles, has long been something of a mystery. It now explains itself convincingly as an approach to a former ferry across the Wash ; it is picked up on the opposite shore of Lincolnshire by a road through Burgh-le-Marsh, and is in all respects comparable to the road-and-ferry system across the Severn between Sea-mills and Caerwent, or across the Humber at Brough. The Saxon-shore fort at Brancaster is not exceptional in displaying this independence of the earlier road-system. Like Bradwell and certain other forts of the series, it probably depended primarily upon sea-transport.

A second point is perhaps of wider significance. In the light even of so incomplete a restoration of the physiographical features as is possible on the small scale of this map, the solitary and rather mysterious transverse route known as the Fosse Way assumes a new meaning. It is well known that, amongst the arterial roads of Roman Britain, the Fosse alone has failed to retain its primary utility in post-Roman times. In some obscure way it belongs, therefore, to a scheme which, after the Roman period, became obsolete, and was indeed already ignored by the Antonine Itinerary. Such a fate is unusual for a great road, 140 miles long, if it was laid down by the far-sighted founders of our modern road-system. Mr R. G. Collingwood (*Journal of Roman Studies*, xiv, 252) put forward the ingenious theory that the Fosse originated as the temporary frontier-line drawn from Trent to Severn by the governor Ostorius in 46 A.D. This theory holds the field, but does not exclude a further suggestion. The present map shows clearly enough how the Fosse skirts the main forest-zone and, towards the north, climbs on to the ridges. It follows, in fact, a natural line of communication from the south-west to the north-east across the midlands. The point is at once emphasized and, I think, explained if the present map be

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compared with that published in another context by Dr Cyril Fox (*Archaeologia Cambrensis*, 1927, fig. 1 facing p. 68, and see p. 96). There Dr Fox very acutely shows that through a great part of the La Tène period there is a well-defined culture-zone extending from Somerset and Gloucestershire to Northamptonshire, Lincoln and Yorkshire; and that this line coincides geologically with a narrow Jurassic belt of well-drained sandy soil, suitable for habitation and traffic and extending from the limestone uplands around the head-waters of the Thames as far as the Humber. The line drawn by Dr Fox down the middle of his Jurassic belt is substantially equivalent to the line of the Fosse, save that the Fosse skirts what may be called the Leicester fringe of the central forest-zone, whereas Dr Fox's hypothetical line inclines to the Northampton side of it. The approximation of the two lines and the demonstrated cultural unity of the region thus traversed is at least an interesting coincidence; and it raises in my mind a strong suspicion that the Fosse Way represents not merely a Roman frontier-line but also, like the Icknield Way, a route of pre-Roman origin. The same geological factors which may have determined the use of the line for prehistoric traffic would likewise help to determine its use (doubtless with local modification) as a temporary frontier during the north-westerly advance of the Roman invader. But they would thereafter cease to influence the plans of the Roman engineers, whose interest was focussed on the Lower Thames, and the career of the Fosse in a Roman guise was thus in any case predestined to be a brief one.

Relatively to the number of sites recorded, there is remarkably little in this map that calls for amendment, but one or two minor points might perhaps receive attention in the next edition. The symbols are on the whole clear and well-chosen. The least satisfactory is that for 'temporary fort' (voided square), a doubtful term which seems here to be applied with varying significance. There are on the one hand forts of more or less permanent character which happen to have been occupied only for a short time. Such a one is Caer Mote, south-west of Old Carlisle. On the other hand, there are small temporary camps, the exact equivalent of those larger temporary camps which are clearly shown by a separate symbol (voided oblong). Several of the smaller earthworks along the border-road between the Wall and Newstead are of this type. The best solution is probably to mark forts such as Caer Mote with black squares, i.e. as forts, and to reserve the voided square for the 'small temporary camps', retaining the voided oblong for 'large temporary camps'. Incidentally, at the risk of a little overcrowding, it might be well to indicate, at least generally, the presence of numerous temporary camps (large and small) along the line of Hadrian's Wall, particularly at Haltwhistle and Gilsland.

Milestones, if included at all, should be inserted more freely. For example, of twelve milestones in Wales, only one is shown on the map. I doubt, however, whether milestones add to the value of the map, and every unnecessary symbol removed increases the clearness of the remainder.

Caistor-on-the-Wolds and Horncastle in Lincolnshire certainly deserve promotion from mere 'village' or 'evidence of occupation'. They are both fortified sites with massive stone walls and bastions—indeed, I am inclined to think that they are two more of the growing number of Saxon-shore forts. They are at least fortified towns. Reycross, between Bowes and Brough, is a 'large temporary marching camp', and not (as shown) a 'temporary fort'. And what evidence is there for a fort at Workington, on the Cumberland coast?

These are matters of detail. On its small scale, the map remains probably the best of its kind ever produced in any country. A final word to the buyer—the linen-backed edition is well worth the extra shilling charged.

R. E. M. WHEELER.

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RHODESIAN MAN AND ASSOCIATED REMAINS. By WILLIAM PLANE PYCRAFT, G. ELLIOT SMITH, F.R.S., MACLEOD YEARSLEY, F.R.C.S., J. THORNTON CARTER, REGINALD A. SMITH, B.A., F.S.A., A. TINDELL HOPWOOD, M.Sc., DOROTHEA M. A. BATE, and W. E. SWINTON, B.Sc. With an Introduction by F. A. BATHER, M.A., D.Sc., F.R.S. 1928. *London: the Trustees of the British Museum.* pp. xiv, 74 with 23 text figures, 5 plates. 12s 6d.

The long awaited official report on the remains of Rhodesian Man has been issued by the Trustees of the British Museum. The list of authors is impressive. The plates are excellent and the text drawings are beautifully executed. The report includes monographs or notes on the human remains, the endocranial cast, the pathology of the temporal bone, the teeth, the associated stone implements, and the animal bones found in the cave. No adequate geological report is included. No attempt has been made to articulate the *disjecta membra*. There are no general conclusions.

Mr William Plane Pycraft has evolved from the reconstruction of an innominate bone fragment the theory that Rhodesian Man walked with a stoop. The pelvic fragment in question may or may not have belonged to the owner of the skull. There is no proof of the association. A portion of a second innominate bone is assigned by Mr Pycraft to another individual of modern type. The author does not publish the reconstruction of the innominate bone upon which he bases his theory of the unusual posture of Rhodesian Man, at least not in this monograph. A small cut of the restoration may be found in a popular article in the *Illustrated London News*, 8 September 1928. Mr Pycraft thinks that the Rhodesian Man walked with legs wide apart at the knees, with the feet turned somewhat inward and the body bent forward. The reviewer does not believe that Rhodesian Man or any other kind of man ever walked in this fashion. He is wholly sceptical both of the correctness of the pelvic reconstruction and of the conclusions drawn therefrom. Mr Pycraft proposes a new genus for the specimen which he christens *Cyphanthropus* ('stooping man').

Professor G. Elliot Smith considers that the deficiencies in the prefrontal, upper parietal, and inferior temporal areas clearly differentiate the endocranial cast of Rhodesian Man from the Neanderthal type and justify the recognition of a new species of inferior rank. The capacity of the endocranial casts is only 1280 cubic centimetres.

Dr Macleod Yearsley discusses two perforations in the left temporal bone of Rhodesian Man. He thinks that the perforation of the squama was the result of a blow by a sharp instrument and that the hole in the mastoid process was due to suppurative middle ear disease complicated with mastoid abscess.

Mr Reginald A. Smith briefly describes the crude stone implements recovered from the cave at Broken Hill which yielded the skeletal remains of Rhodesian Man. One or two of the implements suggest or recall Mousterian types. Mr Smith wisely refrains from committing himself to an opinion as to the antiquity of these stone objects.

The entire question of the geological antiquity of this most important find and of the provenance of the various skeletal parts discovered is neglected in this official report. But the animal remains without exception seem to belong to existing species.

One ought to be able to venture a classical allusion in an English review devoted to archaeology. The monograph issued by the Trustees of the British Museum recalls the 'tag' beginning *Parturiunt montes* . . .

E. A. HOOTON.

PLATE I



PREHISTORIC CIRCLES AND WOODEN POST HOLES NEAR NORWICH, DISCOVERED FROM THE AIR, 15 JUNE 1923

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facing p. 257

Antiquity

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Editorial Notes

ANOTHER Woodhenge has been found, just outside the City of Norwich. Like the first it was discovered from the air by Wing Commander Insall, v.c., who was flying over it, pin-pointing, on 18 June last. The discovery was accidental, in the sense that it was totally unexpected, and it is of the first order of importance.



The site (which is illustrated on plate I opposite) lies in a grass field called Bridge Meadow, in the northern corner of the parish of Arminghall (Norfolk, 6-inch sheet 75 NE) opposite Old Lakenham. It consists of two concentric rings surrounding a circle of 9 dark spots representing without doubt wooden post-holes. The rings are revealed by the dark green grass which grows upon them and which contrasts strongly with the parched brown grass of the rest of the field. It is a gift of the drought. The rings represent ditches of which no other sign is visible. The soil is a sandy gravel. The outer ring is 10 feet wide; it is partially obscured on the south by a modern hedge and by an old field-bank running from a tree to the hedge at an acute angle. The inner ring is 25 feet wide and broken on the south-west by a gap or causeway about 14 feet wide. The holes have a diameter of 6 to 7 feet.



We visited the site with the finder on 26 June and it was possible to see both circles and holes marked out in the grass with the utmost clearness; the line of division between brown and green was sharp and distinct, enabling the dimensions to be taken with considerable accuracy.

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The rings surround a knoll, and the interior of the circles is a saucer-shaped depression which has the appearance of having been hollowed out. There is no indication of anything at the centre. (The large dark splotch east of the gap is a patch of stinging-nettles growing over the outflow of a modern drain, and there are other smaller patches visible near by). The river Yare is less than a quarter of a mile distant on the north-west. Not far off is a small circle whose ditch (of varying dimensions) is 8 feet wide on the north side. There is a hint of another circle (perhaps double) in the barley field on the opposite side of the road, due south of the new Woodhenge.



Before discussing the general bearings of the discovery we must describe another and almost equally important one made during the same flight. It consists of two concentric rings, but here the outermost ring is the wider of the two ; they are both perfect and unbroken by any gaps (plate II). The position is just over half a mile south-west of the new Woodhenge, on a tongue of land forming a promontory between the Yare and the Tas, just before they unite. The field is sown with barley, and the circles are revealed by the darker green growth above the silted-up ditches. Not only is the barley darker in colour, but it is also as much as six inches higher. There is a distinct suggestion of something inside the inner circle. There can be no doubt that these circles represent a disc-barrow, and that the narrow inner ring surrounded the small central burial-mound. The site is a gravelly hillock ; but it is not, like the other, saucer-shaped on the summit. Outside on the south-west is a mysterious D-shaped enclosure. The field is in the parish of Markshall and is called Monks on the tithe-map of 1840. The site is a mile north of the Roman town of Caistor (Venta Icenorum) of which an air-photograph was published in our last number. The Ordnance Map marks several other antiquities in the neighbourhood.



There is a strong probability that the Norfolk Woodhenge is contemporary with the neighbouring disc-barrow. A similar and even closer association occurs at the original Woodhenge in Wiltshire, which, as many of our readers will remember, was also first announced in ANTIQUITY (Vol. I, plate opposite page 92). There, in the foreground, is a disc-barrow in which was found later a beaker and skeleton. The interment was furthermore proved to be contemporary with

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Woodhenge. What does all this indicate? That Woodhenges and disc-barrows (to say nothing of Stonehenge) were the work of the Beaker-folk who invaded England at the end of the neolithic period of this island, and who probably brought with them the knowledge of metal. Now the evidence of the beakers themselves shows, as Lord Abercromby pointed out long ago, that the invaders came from somewhere near the mouth of the Rhine; and this is precisely where timber circles are most abundant at the same period (see *ANTIQUITY*, I, 100).



Norfolk is for geographical reasons precisely where one would expect to find scattered traces of the Beaker-folk, though hitherto they have been rare. A few beakers have been found in the district west of Cromer and a few more in the west of the county. An account of some newly discovered beakers in East Anglia is published by Mr J. Reid Moir in *The Antiquaries Journal*, July 1929, pp. 250-3. One would however not expect the barren gravelly heaths ever to have been capable of supporting a large population; and large concentrations like those of Wiltshire or the Yorkshire Wolds must not be looked for. We may confidently hope, however, for fresh discoveries to be made from the air, especially during dry years like the present. The beaker-regions, whose existence already has been established, round Colchester and Ipswich and on the Fenland shores south of Brandon, would well repay search from the air.



Caistor itself is, this year, a complete blank; not even the streets are visible from the air—only the area excavated. On the opposite side of the river however, an air-photograph reveals many interesting marks, the most interesting unfortunately being only partially included.



A movement is on foot to establish a School of Archaeology in Iraq, with its headquarters at Baghdad. The idea originated with Gertrude Bell, who bequeathed a sum of money on trust for this purpose; and the new foundation will be a suitable memorial of the great work she carried out there. By means of scholarships or appointments, the School will, it is hoped, provide British students with greatly needed facilities for study in the country. But the number of such students is not at any time likely to be large; and the main object of the School will be to encourage, support and undertake archaeological

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research in the widest sense of the word, including excavation. Sir Edgar Bonham Carter has undertaken to act as Honorary Secretary, and he will be glad to hear from any persons interested in the proposal. (His address is 17 Radnor Place, London, W.2). An effort is being made to raise a capital fund with which to carry on the School for at least five years.



The proposal has our cordial sympathy and support. A School of Archaeology in Baghdad might perform many useful functions. If it were no more than an Intelligence Bureau, it would serve a useful purpose; for, strange as it may seem, there is no British Society exclusively devoted to the archaeology of Iraq, and information about it is by no means easily obtained.

But the School might do much more than this. There are few countries where field-archaeology pure and simple, without excavation, can achieve so much. The whole land is covered with ancient sites which can be recorded by photography, measured plans and written record. Furthermore, though we almost fear to weary our readers by over-insistence, no country in the world is more suitable for air-photography, and nowhere is such a rich harvest waiting to be gathered in. The climate is sunny; the authorities are sympathetic; and many of the officers of the Royal Air Force are keen though at present without much guidance from archaeologists. The existence of a School of Archaeology might remedy this.

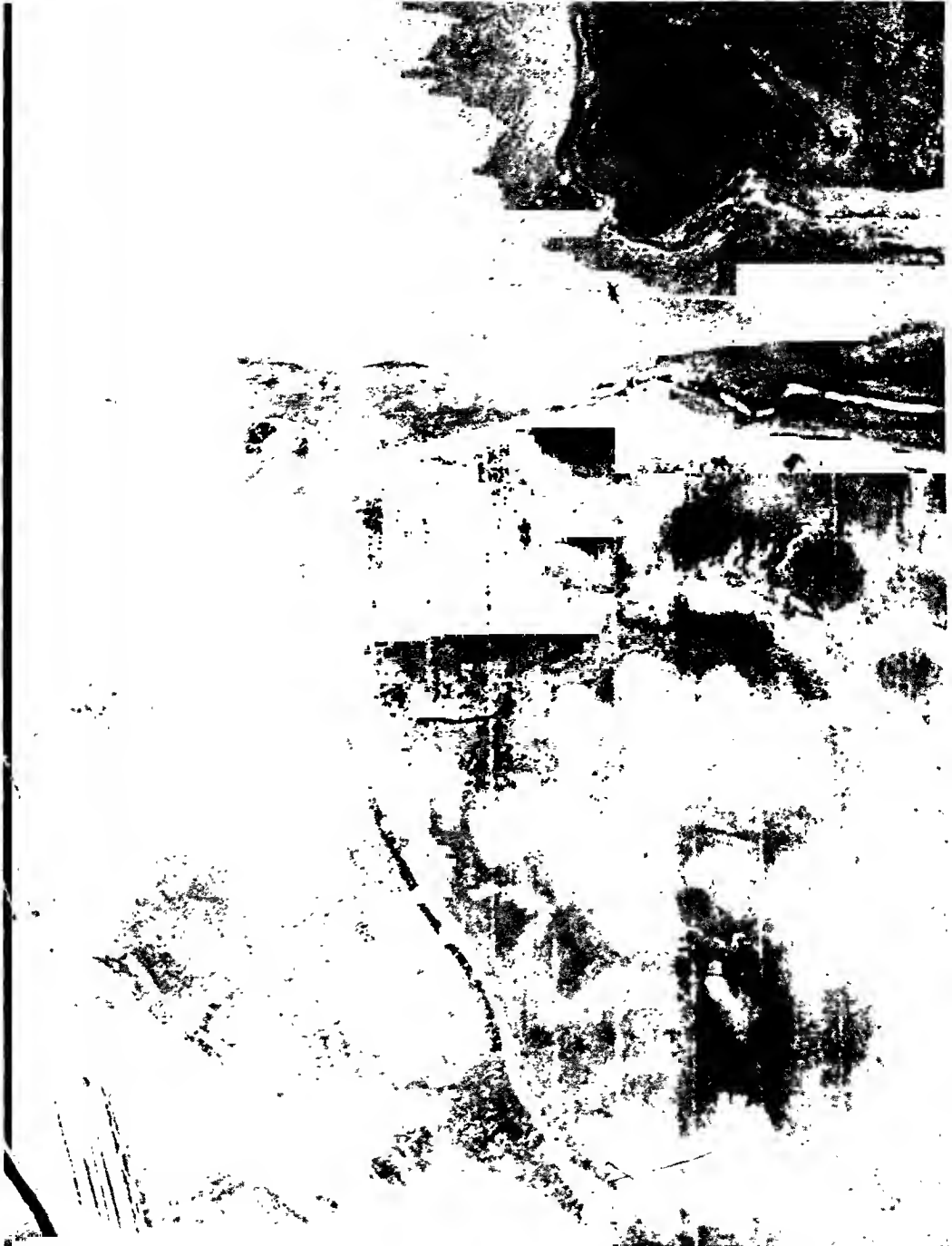


As an example of the sort of work to be done we might mention Miss Gertrude Bell's book *Amurath to Amurath*. It records little excavation; but it is full of plans and descriptions of important sites, many of them up to then almost unknown. Dr Herzfeld's four volumes (*Archäologische Reise im Euphrat- und Tigris-Gebiet*, 1911-20) are another instance of the value of a topographical survey of antiquities. Had air-photography been available for these writers the value of their work would have been immensely increased and their labours proportionately lightened. They would also have made many other new discoveries.



An important discovery was communicated too late for comment in these Notes. Details will be found on page 350.

PLATE II



DISC BARROW AND D-SHAPED ENCLOSURE IN MONKS FIELD, MARKSHALL, NEAR NORWICH.
DISCOVERED FROM THE AIR, 18 JUNE 1929

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Town and Country in Roman Britain

by R. G. COLLINGWOOD

THE second edition of the Ordnance Survey Map of Roman Britain gives us what we have never had before—a detailed account of the distribution of population over a large tract of the Roman Empire. Hitherto it has been impossible to say what principles governed the distribution of population during that period; and the result has been that everything written about the population of the Roman Empire has been somewhat vague and inconclusive, and has generally been confined to sweeping generalizations founded on induction from a very few facts, or to mere repetition of isolated statements, some doubtless true, others perhaps exaggerated or misleading, made by ancient writers.

For Britain, all this is changed by the publication of the new map; and in the following pages I shall try to point out some of the ways in which new light can be now thrown on old problems by a little elementary map-reading.

What was the total population of Roman Britain? It varied, no doubt, at different times; but no estimate that I can offer is close enough to be much affected by these variations. The total population of the Empire at the birth of Christ has been estimated at 70 millions; about A.D. 300, at 50 millions or less.¹ It is generally said that the total population was falling more or less throughout the Imperial period, and it is possible that this decline affected every part of the Empire to some extent.² Now, taking the latter figure, and allowing for the facts that the eastern provinces were far more densely inhabited than the western, and that one-seventh of the whole population of the Empire is accounted for by Egypt alone, it is difficult to conceive any distribution of the remainder which could allow to Britain more than half a million or at most a million inhabitants.

¹ Stein, *Geschichte des spätrömischen Reiches*, 1928, vol. I, p. 3.

² Seeck, *Geschichte des Untergangs der antiken Welt*, book I, ch. 5. The evidence of a decline in population there quoted is voluminous and impressive, but one must beware of generalizing from instances of alleged depopulation which, if typical, would forbid us to think that there can have been any population whatever left in the Empire after a few generations. Rostovtseff, *Social and Economic History of the Roman Empire*, 1926, p. 328, has argued that the decline in question was probably confined to Greece and Italy, and adds that many cities in Africa and elsewhere increased steadily in size up to the fourth century at least. He does not apply this dictum to Britain, nor, I think, would it be true if so applied.

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Another line of approach would be to work backwards from the estimated population of England and Wales in the Middle Ages.³ In 1066 this is reckoned at a million and a half ; in 1415 at 3 millions ; that is, it has doubled itself in 350 years, and in another 350 years it has rather more than doubled itself again, having reached 7 millions in 1760, the date usually assigned to the beginning of the industrial revolution. Working backwards from 1066 according to the same formula, we get three-quarters of a million in A.D. 700, after the Anglo-Saxon settlement has taken place. This suggests that the population of Roman Britain, at any rate towards the end of its history, was considerably less than three-quarters of a million. It may be replied that this argument ignores the carnage that accompanied or preceded the Anglo-Saxon settlement. But, however great this carnage was (if indeed it took place at all), experts are agreed that warfare and massacre have little effect on the density of populations. For instance, Seeck brings forward evidence to show that 'it was not the sword, but the lack of births, that depopulated the ancient world' (*op. cit.*, I, 350) ; and Professor Carr-Saunders points out that the determining factor in all populations must be the extent to which the natural power of increase is allowed to have full play, and argues that ultimately the density of every population depends on the available food-supply, which again depends largely on the technical skill of the food-winners (*op. cit.* pp. 10-11, and *seqq.*). Losses due to war, on this view, are quickly made good, so long as the war has not caused a permanent shrinkage of the food-supply.

A third line of approach—the only one that can give results of any real value—is to take the map and work out a detailed estimate. I have done this as well as I can, making a generous allowance for inhabited places not marked on the map ; and the result—after a process of calculation whose outlines I have set forth in an appendix—comes out at half a million. The fact that this estimate agrees very well with those arrived at by rougher methods may encourage us to accept it as a working hypothesis.

The reason why it is worth while to ascertain the total population of a given country, at a given time, is that a necessary relation exists between the density of a population and the way in which it lives.

³ I use the figures given in Carr-Saunders, *Population*, 1925, p. 7, and take the opportunity of expressing my debt to that admirable book, and to the same author's larger work on *The Population Problem*, Oxford, 1922.

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Thus a figure, expressing the number of inhabitants to the square mile, is a valuable index of the economic condition of the country. 'It is very unusual', says Professor Carr-Saunders,⁴ 'for a race that has no knowledge of agriculture to reach a greater density than one to the square mile. How sparse a population such a figure indicates may be gathered when we recall that in 1921 there were in England and Wales 649 people to each square mile. Among races that practise a primitive form of agriculture the number may rise from something over 1 to 10 or 20 or even to 30 or 40 to a square mile . . . The more skilled a race is, the denser is its population, at least as a general rule. Agricultural races are more skilled than hunting races, and have as a rule denser populations; while the more skilled agricultural races have a denser population than the less skilled agricultural races'.

Now the population of Roman Britain, according to our estimate, works out at under 9 to the square mile. Contrast this with 26 in 1066, 52 in 1415, or 99 in 1714, and the extreme thinness of the Romano-British population is at once apparent. The inference is that the Romano-Britons 'practised a primitive form of agriculture', and not only that but stood quite low down in the scale of even primitive agricultural methods.

This inference will, perhaps, be regarded with disfavour by people who are impressed by the high civilization of Roman city life and the magnitude of Rome's political and legal achievements. Generalizing from these facts, one is tempted to imagine that other sides of Roman life must have had an equally modern or advanced character, and—in the absence of statistical information—to assume that Rome introduced scientific agriculture into the provinces she conquered, as a modern imperial power would. Assumptions of this kind are at the bottom of a good many misunderstandings and unsolved problems connected with the economic and social life of the Empire and its ultimate political fate. In the course of this paper I shall try to show that the conception of the primitive character of economic life in Roman Britain fits the known facts like a glove, and suggests a reading of Romano-British history which makes it more intelligible than it has hitherto been.

Before going into further detail, a criticism must be forestalled. It will perhaps be said that the low density-figure of ancient Britain was due to warfare, or to the barrenness of the country, or to the cultivation of the worse soils because the better were not available, or to Roman misgovernment, or in short to some cause other than the primitive

⁴ *Population*, pp. 10–11.

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character of British agriculture. But these suggestions can be easily answered. The tribal warfare of the pre-Roman period cannot have influenced the population very seriously, for the reasons already stated above ; and, if it had done so, the population ought to have risen enormously under Roman rule. But however much it rose, if it never rose above 9 to the square mile it never got beyond the stage of a very primitive agriculture. As for the barrenness of the country, Britain is not a barren country, and the ancients did not think it was. Tacitus, for instance, expressly says that it is fertile, although unsuited to the olive and vine.⁵ It is true, as we shall see, that the Romano-Britons did cultivate the worse soils ; but that was just because their agricultural methods were primitive. And very likely the Romans misgoverned the country in many ways ; but mere misgovernment will not impoverish and depopulate a country unless it takes the form of initiating or perpetuating uneconomic methods of production. In short, no other explanation can be accepted for the fact that the population of Roman Britain never, in nearly 400 years, rose above 9 to the square mile, than the consistently primitive character of Romano-British agriculture.

This becomes even plainer when we turn from the total numbers, and the average density, to the distribution. One of the most valuable features of the new map is the plotting of primeval forest areas, based on a detailed study of the topography of soils. Now, when one examines the map with an eye to geology, relief, and the distribution of woodlands, a very remarkable fact emerges : namely that the Romano-British population lived on soils that could be tilled without clearing forests or draining. They inhabited the chalk downs, the oolite plateaux, and in general the high-lying permeable or naturally-drained soils.⁶ There

⁵ *Agricola*, XII, 4.

⁶ There seems to be a certain difference of opinion among geographers and botanists as to how far these chalk and oolite uplands were originally free of timber. Thus, in the recent regional study of *Great Britain* edited by Dr Ogilvie, Cambridge, 1928, Professor Tansley says that 'with pasturing excluded chalk grassland would be occupied by scrub and beech forest' (p. 25), and Professor Rishbeth (p. 75) takes the same view but quite fails to show why, if that is so, these lands were so emphatically chosen as a residence by primitive agricultural man. On the other hand, in the same volume (p. 137) Mr Beckett says 'it is virtually certain that the heavy undrained clays of the lowlands were covered primevally with forest or swamp, while the uplands, the home of the earliest inhabitants, were relatively clear'. For my purpose it does not much matter which of these two views is correct, so long as it is admitted that the uplands in question (*a*) were less intractable to primitive man than the lowlands because anyhow they did not need draining, and (*b*) had already been largely cleared, if they needed clearing, before the Roman period began.

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are hardly any Romano-British inhabited sites in places where settlement and cultivation would require a preliminary clearing of surplus wood or surplus water. And this is broadly true not only of the humbler villages, but even of the villas, the agricultural establishments of men who (one would suppose) had plenty of capital to sink in such work had they thought fit to do it. Here and there, no doubt, a villa may be found in a forest-clearing; but these are rare, and do not invalidate the general rule that Romano-Britons lived on naturally cultivable soils, that is, soils which required practically no capital expenditure to bring them into cultivation.

In choosing naturally cultivable soils for inhabitation, the Romano-Britons followed prehistoric usage. All over the country the pre-Roman inhabitants of the early Iron Age had chosen just these soils for their settlements. Thus in the more mountainous parts of England and Wales the early Iron Age settlements occur almost universally on the shoulders of the mountains, high-lying ground which now is utterly uninhabited; and the reason is, without doubt, that the valley-bottoms were not yet cleared of forest and marsh, so that the 'ancient Britons' were driven to cultivate the miserable soils of the mountain-side because they could not face the capital expenditure of clearing the better soils of the valley.

On the other hand, this usage, common to the pre-Roman and Roman inhabitants, was abruptly deserted by the Anglo-Saxon settlers. In their original home we know that the Germanic tribes were accustomed to cultivate forest-clearings; and they carried this custom with them when they came to Britain. Mr O. G. S. Crawford has shown⁷ that in Wessex the Saxon settlements lie along the river-valleys while the Celtic villages lie on the plateau above. Subsequent investigation, which has proceeded apace in the last few years, has amply confirmed that generalization; and it is broadly true for the rest of England as well. Exceptions certainly occur. In some places Celtic villages exist in low country beside rivers or in marshes; but these are not numerous enough to overthrow the general rule, and many of them are to be explained by realizing that what the Celtic population wanted was not height as such but naturally cultivable soil, which can often be found on a patch of gravel in low country beside a river. The Saxons, on the other hand, though their earliest settlements are very often beside rivers,⁸ did not insist on a river-bank. What differentiates them so

⁷ *Air Survey and Archaeology*, 1928, second edition.

⁸ cf. Leeds, *Archaeology of the Anglo-Saxon Settlements*, map on p. 19.

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sharply from the Roman and pre-Roman inhabitants is the fact that they were willing to settle in places where capital had to be sunk in clearing woodland.

The distribution of the Romano-British population is therefore a prehistoric type of distribution, just as its total density is a primitive type of density. From this fact, various inferences may be drawn.

First and foremost, the Romans did not come to Britain, as a modern European traveller goes to a less civilized country, with an eye to the possibility of great improvements in agriculture. They did not say 'this country might be made far more productive by using capital to reclaim forest and marsh-land'. On the contrary, they accepted without question the fundamental principle of native agriculture—the principle of avoiding capital expenditure by scratching the most easily accessible soils and neglecting all others. They may have introduced minor improvements; it is easy to imagine that they must have done so, when one considers the Italian appearance of a great Romano-British villa: but even if they did—and definite evidence even of minor improvements is wholly lacking—they left the main principles of British agriculture unaltered. This is, perhaps, less surprising when we reflect that in many other technical matters, for instance in metallurgy, the Romans do not appear to have taught the Celts anything new.

Secondly, the Romans do not seem to have turned their minds to increasing the productivity of the country at any time after their first arrival, as they might have done had they been faced with a rising population to feed or attempted to increase production so as to meet increasing taxation. In nearly four centuries, they did not ever begin systematically to clear and cultivate soils of a new type. They were content not only to accept the primitive agriculture of the Britons at first, but to leave it in its essentially primitive condition throughout the period.

Thirdly, it is important to recognize that the naturally cultivable soils in Britain are not the best.⁹ They are on the whole decidedly

⁹ The following observations are not applied to Britain as a whole, but to the upper Thames basin and the region adjacent to it on the north and north-east. But they hold good of most of the more densely-inhabited Romano-British districts. 'On the clays, *i.e.* in the lowland, deep and particularly fertile soils occur, but are usually heavy to work and hard to drain; the lighter soils of the uplands, usually sandy or calcareous, are lighter, drier, and easier to work, if less productive and shallower. It was on these soils that the earliest efforts towards tillage seem to have been made'. (Beckit, in *Great Britain, cit.*, p. 137).

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inferior in quality to those which have been brought into cultivation by clearing and draining. Consequently the profits of agriculture in prehistoric Britain were relatively low, and the necessary outlay of labour relatively high. The result was a condition of poverty which Roman rule did nothing to alleviate ; for it could be alleviated only by sinking capital in the cultivation of better soils. The agricultural wealth of the country per head of the population was not increased by the Roman conquest, as it was by the Saxon settlement, which tapped new and richer sources of wealth. This means, in terms of density, that Anglo-Saxon England would support a larger population than Roman Britain ; and, once the idea of reclaiming uncultivated land was established, this population would rise. Hence we are justified in thinking that the steady increase of population found in the Middle Ages must have begun in the Anglo-Saxon period ; and this is an additional reason for believing that our estimate of the Romano-British population at half a million is fairly correct, because that estimate, taken together with such an increase, would tally with the estimate for 1066.

It would be of great value if we could estimate the population of Britain just before the Roman conquest. Unfortunately, in the present state of our knowledge, this is not possible ; or rather, no estimate that can be made has a small enough margin of error to be of use to us. But it may be worth while to discuss the matter briefly in the only way that seems promising—by asking whether the Roman conquest is likely to have increased or diminished the population.

The events of the conquest, and in particular the punishment of Boudicca's Icenian rebels, the destruction of the Ordovices, and other incidents of the same kind, may have led to the depopulation of certain districts. Certainly the Icenian territory is remarkably poor in remains of the Roman period. But on the whole, events of this kind are likely to have had a merely transitory effect ; populations as a rule recover quickly from wars and massacres, and the temptation is always to overestimate their importance.

On the other hand, the *pax Romana* may have stimulated agriculture even if it did not appreciably improve its methods ; villages may have become larger and more numerous, and the cultivated area may have increased even though the type of land selected for cultivation remained in general unaltered. But here again the argument depends on the depopulating effect of warfare—in this case inter-tribal warfare in the pre-Roman period—and once more we must beware of overestimating this effect.

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Whatever their respective weight, however, this at least is clear, that the two arguments just stated tend to counterbalance one another. Small increases in certain districts may well have come about, more or less balanced by small losses in others. One thing is quite certain : that no really important change in the population can be postulated unless it can be shown that there was an equally important change in the production of food ; and on the whole the evidence is against any such change having taken place. Consequently we have no right to assert that the population of Britain just before the conquest differed very much from its population under Roman rule.

In the present state of our knowledge, therefore, it is safest to assume that the distribution of the rural population in Roman Britain was a prehistoric distribution not only *qualitatively* (with respect to the kind of soils in cultivation) but also *quantitatively* (with respect to the area of these soils actually exploited). This is the assumption for which there is the best *prima facie* case. Before it can be either exploded or raised to the level of demonstrated fact, a great deal of excavation must be carried out on the sites of villas and villages, with the express purpose of ascertaining their history in the early Roman period and before that period began.

‘ The most potent single factor in the Romanization [of the west] ’, wrote Haverfield, ‘ was the town. Italian civilization was based on city life ; it was natural that the Empire should diffuse that life, especially in the provinces of western and central Europe which had few towns or none before they came under Roman rule ’.¹⁰ It has often been pointed out that the Roman towns in Britain, even when—as is rarely the case—they stand on the sites of pre-Roman towns, are essentially Roman creations, and in most cases probably owe their origin to a movement that was going swiftly forward in the late first century and is recorded to have been under the special patronage of Agricola.¹¹ The rapidity and momentum of this development, however, are far more impressively visible now that Dr Wheeler has shown the early date of the Roman walls of London.¹² They were built ‘ within half a century of the Boudiccan revolt ’, and enclosed an area of 330 acres, much of it at the time unbuilt-on, revealing in an unmistakable way the expectation, perhaps never made good, of future growth. Similarly,

¹⁰ *Romanization of Roman Britain*, ed. 4, 1923, pp. 14–15.

¹¹ Tac. *Agricola*, xxi.

¹² *Roman London* (*Royal Commission on Historical Monuments*), 1928, pp. 35, 74.

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at Wroxeter we have evidence of grandiose town-planning in the late first and early second century: a magnificent bath-building, projected and commenced in the Flavian period, but never finished, and on its site the great forum which was dedicated to Hadrian in the year 130.^{12A} On the whole, evidence from other town-sites agrees with this and suggests that the late first and early second century was the age of town-building in Britain.

Now the building of a score or so of towns during this period was primarily, no doubt, a political move. A few of these towns, notably London, were of economic rather than political importance; a few were colonies of time-expired soldiers; but most were to be centres from which Romanized tribal authorities should govern their tribal districts. What were these towns to live on? There is no evidence that any of them developed considerable industries; and even if they had, their industries would have required markets, and would find these markets primarily in the neighbouring country-side, in which case the country would have to increase its production to pay the town for its goods. In any case, therefore, the creation of these towns required a counterpoise, in the shape of an increased productivity in the country. We have seen that, *prima facie*, evidence for such increase is lacking. The Britons were encouraged or compelled to build towns; the money to build them and the men to inhabit them came from the country; and it is probable that, instead of the country's becoming richer in order to support the towns, it became poorer because the towns were built. Even Tacitus admits that the town-building movement encountered resistance and had to be promoted by every means short of actual compulsion;¹³ it may be that this reluctance was due to something better than mere stupidity.

If, as I have suggested, the town-building movement was economically unsound because not based on increased agricultural production, evidence of this ought to be discoverable in the towns themselves by excavation. The only considerable excavations carried out by modern methods in a typical Romano-British town are those of 1912-14 and 1924-1927 at Wroxeter; and here the required evidence was actually found. The forum—the centre of the town's economic and political life, the symbol of its townhood—underwent 'a second and final destruction . . . about A.D. 300. The evidence for a still later occupation

^{12A} *J.R.S.* XIV, 226-8; XV, 228-9; XVI, 224-5; XVII, 197-199.

¹³ *Loc. cit.*: . . . *laudando promptos, castigando segnis; ita honoris aemulatio pro necessitate erat.*

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was slight and partial, but it was clear that traffic had continued along the main road and cross street long after the building had become a ruin. Thus confirmation seems to be given to the conclusion arrived at in 1912-14 that Viroconium more likely ended in gradual decay than in destruction by violence at a flourishing period' (*J.R.S.* XIV, 227).

Here we have at any rate one example in which a town sank into a state far inferior to its original condition, long before the Roman occupation ceased. It is for future excavators to decide whether this is the rule or the exception ; but for the present we ought to assume that what is known to have happened at Wroxeter may have happened elsewhere : namely, that the hopes of the first and early second centuries were not fulfilled, and that in the third and fourth centuries the towns of Britain were partly in ruins and were inhabited by a dwindling and impoverished population. There is, however, no doubt that they continued to be centres of local government, and that, however shrunken their resources, they were still doing their best to fulfil their political functions even in the fifth century.¹⁴

Thus the evidence of excavation, slight though it is, goes to support the view put forward above, that the towns of Roman Britain had no real basis in the economic system of the country. The country was too thinly populated either to need, or to support, urban life. What happened, according to the above reading of the evidence, was that the Romans found a country with a fairly flourishing civilization and a population of half a million, practising agriculture in a way which supported it well enough in a strictly rural manner. Upon this foundation the Romans superimposed a new urban system. But they did not materially strengthen or widen the foundation. In all essentials they left the methods or technique of agriculture exactly where they were. Thus Roman Britain, regarded as an economic organism, consisted of two strata : an urban civilization on the Graeco-Roman pattern resting unconformably upon a prehistoric, Celtic, rural foundation. The capital poured into the creation of the superstructure was therefore more or less completely wasted. It impoverished the country instead of enriching it. The foundation was unable to carry the superstructure, and this crumbled away, leaving the original Celtic rural civilization in essentials very much as it had been at the start.

¹⁴ These were the *civitates* to which in 410 Honorius sent word that they must provide for their own defence, *i.e.* take over the work of raising and employing military forces. In 429 St. Germanus found them doing their best (which was not very good) to carry out these orders, and lent them a hand (*Bede*, I, xvii-xx).

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Thus came about what Haverfield called 'The Celtic revival' with which the history of Roman Britain closes, or, as Dr Wheeler has lately christened it, 'The Un-Romanization of Roman Britain'. But in order to visualize this event we must turn back to the country-side.

Whether or no the 'villa-system', the system of large estates, was due to Roman influence, it was certainly encouraged by Roman influence. We do not yet know when it began to play an important part in the life of the country; that is because we have not excavated enough villa-sites properly, and our knowledge of their history depends for the most part on stray finds of coins picked up on their sites. It follows that we know most about the latest phase in that history, whose relics lie highest in the soil and whose coins are most numerous. This evidence enables us to say that in the fourth century, when the towns were apparently shrinking into poverty and decay, the villas were thriving. That, again, is confirmed by the analogy of Gaul, where as time went on the large land-owners tended to become richer and richer. This process was hastened by the system of taxation in the later Empire, which, in defiance of sound policy, bore most lightly on the largest proprietors.

Throughout the fourth century, the owners of large villas in Britain must have been gradually concentrating into their own hands an ever-increasing proportion of the country's wealth. The peasants and villagers were sinking by degrees into the state of serfs, and losing at once their economic independence and their legal freedom. The towns, as we have seen, had failed to make good their claim to leadership. By the late fourth century, the large landowners enjoyed a monopoly of wealth, freedom, influence and power.

This fact decided the fate of Roman Britain. In 367, Britain was overrun by a confederation of barbarian tribes—Picts, Scots, Attacotti, Franks, Saxons—which destroyed its military forces and ravaged the length and breadth of the country. Theodosius, coming to rescue the country from these invaders, found bands of them looting in Kent, and London in a state of siege.¹⁵ Now an invasion of this kind—an irruption of barbarian tribes intent on plunder—is comparatively harmless to a country whose wealth is concentrated in walled towns, because towns of this kind can defend themselves against plundering

¹⁵ Ammianus Marcellinus, xxvii, 8. I may add that I have called attention to the crucial importance of this invasion before (ANTIQUITY, I, 117-19), but only *en passant* in a review of Dill's *Roman Society in Gaul in the Merovingian Age*; so that there is perhaps no harm in going into it here again and a little more fully.

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bands. It is comparatively harmless to a country of peasants and villagers because their wealth consists chiefly of the soil itself, and of produce too bulky, in proportion to its value, to be desirable as loot. But it is fatal to a country of large landowners dwelling in unfortified houses. The richer a landowner is, the more certainly his home becomes a mark for the invader ; and a mere handful of Picts or Scots would suffice to burn and loot a Roman villa and cut the throats of its owner and his family.

That this was what happened in 367 is clear from the evidence of coins. The coins found in Romano-British towns go down, as a rule, to Arcadius and Honorius ; they go down to the end of the fourth century, when Britain was beginning to lose touch with the mints on the continent. But the coins ordinarily found in Romano-British villas only go down, at furthest, to Valentinian I and Valens ; that is to say, they go down to the date of the great invasion, and there they stop. It is impossible to compare a list of the coin-finds in villas with a list of those in towns, without realizing that in the reign of Valentinian I and Valens something happened which brought the history of the Roman-British villa-system to an end. And the exceptions to this rule are significant. In the extreme south-east and the extreme south-west—in Kent and in Somerset—there are several villas whose coins go on to Arcadius and Honorius. Between these two extremes, even as far south as Hampshire, there are practically no villas of any size which seem to have escaped. The inference is plain. Ammianus is telling us the truth when he says that Theodosius arrived to find the invaders already in Kent. He came in time to save a number of villas in that district, and his counter-attack fell on the invaders in time to save a number in Somerset also. But except in these two outlying regions the villa-system had vanished.¹⁶

What is more, the coins tell us that this catastrophe was never repaired. Roman Britain, by 367, had all her eggs in one basket ; that basket was the villa of the large landowner ; and that fact is what made the disaster irreparable. No subsequent reorganization of the defences of Britain could be more than a half-hearted affair, because there was little left that was really worth defending.

¹⁶ With regard to coin-finds in villas, the reader can consult the materials collected in the *Victoria County Histories*, those of Hampshire and Somerset being especially full and illuminating. It may be added that the recent attack on the credibility of numismatic evidence in cases like this, based on a theory of so-called 'coin-drift', by Mr Edward Foord (*The Last Age of Roman Britain*, p. 27), has been completely answered more than once : the latest and most conclusive answer being that of Mr F. S. Salisbury, *Antiquaries Journal*, VII, 268-81.

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The epilogue, so far as it concerns the thesis of this article, can be disposed of in a few words. The great landowners had disappeared ; the towns, having lost them, were even poorer and weaker than before ; but the peasant population remained, standing very much where it had always stood, having learnt little and forgotten little in nearly four centuries. It was still living, as it had always lived, on the naturally cultivable soils, making a bare livelihood by tilling them. It still possessed the shattered remnants of its old tribal organization, and, with the tenacity of the peasant,¹⁷ it set to work to make the best of a bad job. And now come Saxons, ready to settle and lend a hand at keeping off Picts and Scots. For a long time, up and down the Empire, barbarians have been filtering in and settling on land that nobody wanted. In Gaul, it has been going on ever since the third century. These settlers are not enemies ; they are officially made welcome and accepted as allies. If that is true of Gaul, in the third century and later, it is equally true of Britain in the fifth. Hengist and Horsa are not the leaders of a conquering host ; they come with a handful of men in ' three keels ', are welcomed, are given land, and settle down as friends and neighbours.¹⁸ No doubt such settlement, in a country devoid of strong government and military force, will lead to friction of various kinds ; but the point to be borne in mind is that there was no dispossession, partly because the total British population was extremely small—too small to fill the country—partly because the Saxons wanted a different kind of land. They did not deprive the Britons of their villages and fields. They chose sites of their own, sites where no Britain would live ; they settled in the gaps, hitherto thought uncultivable and uninhabitable, between the sparsely-scattered habitations of the Britons, and made new villages and fields of their own. And it is at least conceivable that the ultimate abandonment of the upland British villages may have been due to the discovery that the Saxons had the best of the bargain. Their newly-cleared lands were richer and

¹⁷ St. Patrick's *Confessions* show that. In spite of Irish raids and kidnappings, the life of the country-side goes steadily on.

¹⁸ Our authorities are explicit on this point. The Romano-Britons were, obviously, adopting on their own account the policy of bringing in friendly barbarians which had long been practised in other parts of the Empire, and is amply explained by the density and distribution of the population. I would add that the destructive wars of aggression waged by the Saxons against the Britons, as recorded by Gildas, belong to a much later period. The conflicts belonging to the period of settlement (the middle of the fifth century), so far as we can recover their history, seem to have been mere cases of local friction between the old inhabitants and the new settlers.

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more fertile than the thin and barren soil of the uplands ; why not leave the uplands and throw in one's lot with the men of the valley ? ¹⁹

There is a moral, as well as an epilogue. Some people are never tired of holding up the decline and fall of the Roman Empire as a warning to ourselves. Ancient Rome, we are told, fell by a process much resembling the process of change that we can see now going forward in our own civilization. No doubt, resemblances may be found. A sufficiently determined seeker can always find them. But there are also differences, and the differences are fatal to the parallel. The Roman Empire had an exceedingly small population ; so small, that it could not produce the wealth necessary for the support of its political system. Bound up with the smallness of its population was its inability to invent improved methods of production. Rome had no industrial revolution ; nor had she the centuries of industrial and agricultural advance which gave the industrial revolution its preparation and its agrarian counterpart. The fall of the Western Empire, or rather its change into a congeries of barbarian states, depended on the fact that it neither possessed enough men to cultivate its own soil, nor invented methods of cultivating its soil so successful as to stimulate an increase of population. Hence, on the one hand, it lacked the material wealth to carry out its own political ideas ; and, on the other hand, it was compelled to permit, indeed to encourage, immigration into its own territories.

That is not, and is not intended to be, a theory of the ' causes ' that destroyed the Roman Empire. There are plenty of such theories on the market already, and they belong to a type of historical thinking whose rules are more honoured in the breach than the observance. It is a statement of certain facts which are forgotten, or perhaps not known, by the people who draw parallels between the present age, with its applied science, its intense agricultural and industrial activity, its dense and rising populations, its extraordinary increases of national wealth, and the later Roman Empire, with its total lack of progressive technology, its sparse and stationary or declining population, and its complete failure to expand its national wealth *pari passu* with the increasing complication of its governmental machine.

¹⁹ In Gaul, fifth-century writers tell us that the Romano-Gaulish peasants were going over to the ' barbarians ' of their own accord, because they found they were better off than under the thumb of the Roman tax-collector and large landowner (Salvian, book v). Of course conditions were different in Britain, but not so different as to make a spontaneous movement of this kind unthinkable.

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APPENDIX: THE POPULATION OF ROMAN BRITAIN

(a) *Towns*.—A town of 100,000 inhabitants was a rarity in the Roman Empire ; there were a few of these in the East ; Alexandria and Antioch were well over that figure. In the west, Rome itself may have had half a million inhabitants. It will be seen from these figures (Stein, *Geschichte d. spätröm. Reiches*, I, 3) that a population of 100,000 is out of the question for Roman London. The statement that Boudicca massacred 70,000 people in Colchester, Verulam and London suggests that this figure may be an estimate of the total population of these towns. I therefore suggest 25,000 as a rough guess for the population of London.

(b) The other towns were all much smaller. There were four colonies and thirteen tribal capitals, so far as we know ; three or four other towns like Richborough and Bath may be added to this class, making about 20 whose average population cannot well have exceeded 5,000. This class shades off into the next :—

(c) Towns of a still smaller type. They occur mostly at road-junctions or in the form of posting-stations. There were probably over 50 of them—75 would be an outside number—and an average of 1,000 inhabitants is a generous estimate, considering that many of the posting-stations must have been far smaller.

(d) *Villages*.—About 700 are marked on the new Ordnance Map. In the most densely inhabited areas it is probable that comparatively few have been omitted ; elsewhere there are certainly many omissions, because all 'British villages' are purposely left out in which no evidence of Roman date has been found. But it is improbable that the omissions are as numerous as the entries ; and to estimate the total number at 1,500 would probably be to exceed the true total. They varied very much in size, but it is difficult to suppose that the average was over 100 inhabitants, considering how very small many of them are.

(e) *Villas*.—The number of villas marked on the map is getting on for 500. It is improbable that any very large number awaits discovery, for 'Roman Villas' have been objects of general interest in this country for 200 years, and discoveries have therefore been recorded with a regularity unexampled in other branches of archaeology. However, to be well on the safe side, we will assume 1,000 villas, and suppose their average population to be 50, which greatly exceeds the accommodation of all the smaller villas.

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(f) *The Army*.—This may be estimated at 40,000, and when dependants have been included the number may perhaps be placed at 100,000. It will be remembered that the military colonies have already been allowed for.

This gives the following result :—

(a) London	—	—	—	25,000
(b) Large towns	—	—	—	100,000
(c) Small towns	—	—	—	75,000
(d) Villages	—	—	—	150,000
(e) Villas	—	—	—	50,000
(f) Army and dependants	—			100,000
				500,000

It will be observed that this is something like a maximum estimate : (b) (c) (d) and (e) are probably all too high, and it is possible that every item is too high. The total may easily be in excess of the truth, but cannot very well be much below it.

NOTE.—In thinking over the subject of this paper—whose chief theses, I believe, have not hitherto been stated in print at all—I have had the advantage of discussing various points with Mr O. G. S. Crawford, Dr R. E. M. Wheeler, and Professor A. M. Carr-Saunders. I owe to them not only a number of fertile suggestions, but, what is more important, the general encouragement to pursue a line of inquiry which is rather remote from ordinary topics.

The Giant of Cerne and other Hill-figures

by O. G. S. CRAWFORD

FEW monuments are more interesting to the general observer than the hill-figures carved on the chalk downs of Southern England. The publication of Sir Flinders Petrie's monograph* has led us to revisit one of those he describes ; and the resulting observations are here set down for what they are worth.

Sir Flinders Petrie has performed a useful task in publishing these plans between two covers. The best known hill-figures are the White Horse on the Berkshire Downs, below Uffington castle, which can be seen from the train between Didcot and Swindon ; the Long Man of Wilmington on the Sussex Downs, also visible from the train (between Lewes and Hastings) ; and the Cerne Giant, Dorset. To these may be added, as probably ancient, the two Buckinghamshire crosses carved on the escarpment of the Chilterns. The remainder are all, with two possible exceptions, modern. Those with claims to antiquity are the Warwickshire Red Horse and the two club-holding giants which formerly stood on Plymouth Hoe. Sir Flinders's list, however, is not quite complete. He has overlooked the Shotover Giant recorded by Aubrey in these words : ' On Shotover Hill [near Oxford] was heretofore (not long before the Civil Wars, in the memory of man) the effigies of a Giant cut in the earth, as the White Horse by Ashbury Park '. (*Monumenta Britannica*, unpublished ms. in the Bodleian, part 2, fol. 242b). Minor and quite unimportant omissions are the modern White Horse on Ham Hill, Wilts, which was above Inkpen, Berks, and has now vanished (*Wilts. Arch. Mag.* XLII, 73) and that on the southern rampart of Woolbury Camp, above Stockbridge, Hants. (*Wessex from the Air*, 1928, p. 155 ; published after the monograph). There is also no mention of the numerous regimental badges and emblems carved on the downs during the war (compare *Wessex*, plate VII

* *The Hill-figures of England*, by Sir Flinders Petrie, F.R.S., F.B.A. Published by the Royal Anthropological Institute [Occasional Papers, no. 7]. Pp. 16 and 9 plates of plans. London, 1926. (Price not stated, but ascertained to be 5s.).

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and p. 74; and the list in G. Lansdown's *White Horses of Wiltshire : war badges on the Wiltshire Downs*; a pamphlet printed in 1925).

It is comparatively easy to rule out certain obviously modern figures; but when we attempt to assign an age to the ancient ones we at once encounter difficulties. We know that the Berkshire White Horse was in existence in 1084; the rest is inference. Sir Flinders Petrie attempts to date the Cerne Giant by an ingenious argument, but it will not hold. Briefly it is as follows:—On Weam Common Hill, opposite the Giant Hill, on the west side of the Cerne valley, are a number of earthen banks. Two of these run parallel along the top of the ridge in an east-and-west direction. For a part of their course these banks point directly at the Giant; and the author concludes that 'the Giant was used as a fore-sight in laying out the road' (p. 11). We do not admit the validity of the conclusion, but, assuming for the moment that it is valid, it would follow of course that the Giant was contemporary with or older than the banks. Everything therefore hinges on the age of these banks. What evidence does the author produce? 'Further west are [other] large banks running across the hill at 700 feet, and two of these have deep pits, or shafts, in the line of the bank. As no one would lay out a bank thus, it appears that these pits were for flint mines, sunk jointly by two adjoining field-holders. This gives a probable age for this group of banks, when flint-work was still so important that pits were sunk to get a good supply'. It is an assumption that the banks aligned to the Giant are of the same age as those intercepted by the pits; but for the moment we will allow this also to pass. What of the pits? Nothing could be less like the shafts of flint-mines; the eastern pit is a shallow depression of irregular shape and plainly of no great age; the western is an old pond, not more than about 3 feet deep and (though dry at the time it was seen [1 June], during the dry spell of 1929) obviously still used as such! Thus the whole of the author's main argument for the age of the Giant collapses, even if we allow him his two assumptions. Be it noted that this is not dependent upon what we imagine the shaft of a flint-mine *should* look like, for we actually know of many hundreds of them, their character proven by excavation. They never occur in isolation but only in groups; and those wells or shafts dug in the chalk and often associated with Celtic fields (often, too, dug in the bank between two fields) were dug not for flint but for chalk, to marl the fields.* But these two pits

* See *Air Survey and Archaeology*, 2nd edition, 1928, p. 6.

PLATE I



FRINDLE HILL, CERNI, LOOKING EAST, SHOWING THE GIANT AND MAY POLE ENCLOSURE ABOVE
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PLATE II



TRINDLE HILL, CERN. VERTICAL AIR PHOTO SHOWING THE GIANT, MAY-POLL, ENCLOSURE,
OLD QUARRIES AND (ON RIGHT) REMAINS OF ABBEY

By permission of the Air Council, Crown copyright reserved

THE GIANT OF CERNE

are *not* wells or shafts ; they are shallow excavations such as occur in thousands all over the Wessex downs and they could never be mistaken for anything else by one familiar with them.

Whether the parallel banks were *intentionally* directed towards the Giant for a small portion of their (admittedly changing) course must remain a matter of opinion ; personally we doubt it, because they follow the top of the ridge which itself points here towards the Giant. But, since the *intentional* alignment of the banks is not self-evident and cannot be proved, the whole argument becomes irrelevant. The total length of the ' aligned ' portion is about 800 feet ; on his plan the author continues one bank (the northern) for a distance of more than 500 feet westwards as a single bank, but we could find no trace of this except a short length at the extreme western end.

The implied suggestion that the group of banks forms a contemporary unit is an unproven assumption. We think it most unlikely. Without an air-photograph, it is difficult to disentangle all the banks on Weam Common Hill ; but there is abundant evidence of Celtic cultivation, and also of a series of much slighter banks which look later. To this latter class we are inclined to assign the banks involved above. Such frequently occur on the hills round Cerne, as they always do in the vicinity of monastic establishments.

We have devoted much space to a single line of reasoning because much is made to depend upon it. If correct it could prove the Cerne Giant to be Neolithic or of the Bronze Age. Sir Flinders Petrie's other arguments are less cogent, and seem to us to be inconclusive ; but his conclusions with regard to age may well be near the truth, however fantastic his reasons. The question of age is one that can hardly be answered of deliberate intent ; comparative arguments are helpful but still inconclusive. The evidence of associated remains, again, is weakened by the presence close by of remains of every period, from the presumably Bronze Age barrows on the hill above to the certainly medieval abbey and town at its foot. The most promising line of enquiry would be to excavate the little earthwork immediately above the Giant : and even if the age of this were proven beyond doubt, it would still probably remain uncertain whether it were of the same age as the Giant. It seems to have been originally one of those small four-sided enclosures which are so common on the downs and which belong, for the most part, to the early Iron Age. At a later date a small inner bank has been thrown up (from *both* sides) following roughly the lines of the outer. In the middle is an irregular mound

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(not very successfully plotted on Petrie's plate 4). It was here that the May-pole used to be set up ; and it was this earthwork doubtless that caused the hill to be called Trendle Hill. Possibly the inner bank was made in connexion with these festivities.

Our illustration (plate II) shows the Giant* with his club and a distinct suggestion of something held in his other hand ; the May-pole enclosure is immediately above. On the right are the foundations of Cerne abbey, with its huge enclosing rampart and three curious round mounds ; at the top right-hand corner is a white straight-sided patch suggesting some sort of building, though nothing can be seen on the ground ; the field is permanent pasture. On the left, at the foot of the hill, are some abandoned chalk-quarries, the grass-grown spoil-tips being quite plain. On the brow of the hill, just above the May-pole enclosure, may be seen what looks like a Celtic field, bounded by a plainly visible bank. It cannot have been cultivated for long, for there is no great accumulation of earth on the edges ; but the lower part, where the accumulation would have been greatest, has been destroyed by the chalk quarries. The other illustration (plate I) gives a good general view of the spur on which the Giant is carved. Beyond him, but not visible on this photograph, are many field-banks and mounds, all of prehistoric or Romano-British age. These are for the most part shown by Sir Flinders Petrie on his plan (plate 5) but he has overlooked the village itself, which lies about a quarter of a mile north of the Maypole enclosure and consists of hut-circles and hut-shelves.

The whole of the Cerne district abounds in prehistoric remains, nearly every down being covered with traces of Celtic cultivation ; while on the lower slopes of many of the hills, and of the main Cerne valley especially, are the abandoned terraces of medieval strip-cultivation. The Celtic fields on Smacam Down were planned by Sir Flinders Petrie at the same time as the Giant, but the plan (plate 9) is full of omissions and contains serious errors. The pit east of the long barrow is a large hut-circle standing in an irregular-shaped four-sided enclosure, with a ditch plainly visible on three of the four sides ; but there are no indications of a ditch given, and the fourth or western side is omitted altogether. Of the field-banks shown, one does not exist and several terminate prematurely. The pit near F is a small steep-sided affair, of

* The six-sided frame surrounding the Giant is of quite modern date. The Giant is now the property of the National Trust.

THE GIANT OF CERNE

an entirely different character from the other and probably much later in date ; yet both are called 'pit' with no attempt at differentiation.

We do not like the author's convention of showing everything by means of lines. Such symbolism is too rigid for the elastic forms to which it is applied. Some symbol for a ditch, differing from that used for the top of a bank, seems to us to be absolutely essential. The old-fashioned hachures may be unsatisfactory, but an efficient substitute has yet to be devised. Thick and thin lines (for bank and ditch respectively) have been used with success by several workers.

We do not propose to submit Sir Flinders Petrie's account of the White Horse to the same detailed criticism as the Cerne Giant, because in this case we have not been able to go over the ground again with his book in hand. Of the plan of the Horse itself we can only say that, like that of the Cerne Giant, it is a valuable achievement. But we differ from the Professor's interpretation of the surroundings. Some of the banks on the slopes of the coomb (called the Manger) at the foot of the hill, are undoubtedly caused by cultivation. *No* slope was too steep for cultivation under primitive conditions. We have seen and walked up a hill-side in Bosnia that was just as steep as the slopes of the Manger, and which was actually in cultivation at the time we climbed it. The southern slopes of Smacam Down, as the Professor must have seen when he was surveying it, are nearly as steep as those of the Manger, but are traversed obliquely by Celtic lynchets whose huge size testifies to prolonged cultivation. The author concludes that 'the purpose of such banks must be ceremonial rather than agricultural'. Why 'must'? Are there no other alternatives?

It is usual to compare the White Horse with the horses on the British coins of the Iron Age. The resemblance, first noted by Sir John Evans, is not merely a general one (of shape and attitude) but extends to the details of head and jaws. We still think the comparison a just one, in spite of the author's disparagement. It is in agreement with the inference that the Horse is contemporary with the camp immediately above it, which belongs to an Iron Age type. Our own opinion, for what it is worth, is that the White Horse was the sign or tribal emblem of the people who built and lived in Uffington castle. The horse is common in the art-products of La Tène, and it is the same duck-billed animal ; it occurs on the Witham shield, for instance, and on the Marlborough and Aylesford buckets, all of them contemporary with the coins on the one hand and with a large number of hill-top camps on the other.

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The Dragon Hill is a core of a natural hill trimmed into shape for defence, in medieval times. It is simply a castle-mound.

We have criticized Sir Flinders Petrie's little monograph—a by-product of his leisure—quite frankly, because we are jealous of the reputation of British field-archaeology. Sir Flinders Petrie was one of the pioneers himself, and he was studying and planning earthworks before General Pitt-Rivers did his most important work. We do not wish to end on a note of adverse criticism, or to leave an impression that this monograph is anything but a valuable contribution to the subject. After all it is the hill-figures, not the adjacent earthworks, which form the main subject of the book; the plans here published represent the first comprehensive attempt at an accurate record of such, and they will be an indispensable basis for all future students.

New Light on an Old Problem

by DOROTHY M. LIDDELL

SOMETIMES the Gods are kind, and so they seemed one morning during last season's excavations at Windmill Hill,¹ when some minor official of that department which dispenses new ideas through such simple media as overflowing baths and falling apples, superintended the finding of a large quantity of fragments of 'West Kennet' type pottery, thickly ornamented with a clearly defined design and in the same layer—for this site singularly unproductive—a small bird-bone.

As they lay drying in their trays after excavation, the similarity of form between the joint of the bone and the outline of the pattern suddenly became very apparent. Would they 'fit'?

They did fit, rather pleasantly.

Plasticene was obtained and the impression of the bone taken; surely it would reproduce this very favourite West Kennet design?

It did not; but the result was sufficiently interesting to invite a series of experiments, the outcome of which seems strongly to indicate that the intricate articular surfaces of the bones of small birds, and possibly mammals, were very frequently the tools used for producing the familiar 'stamped impressions' on Neolithic pottery.

The idea, once admitted, attracts by its practical simplicity.

The recognition of some sort of standard tool has long been necessary to account for the recurrence of types of ornament in places as widely separated as Devizes and Wallingford, Edinburgh and Windmill Hill; ornaments which, though perhaps varying slightly in size, are more or less identical in outline.

The haphazard traditional 'irregular piece of stick' could not credibly have achieved this, neither could broken twigs, unless carefully pared, produce the smoothness of hollow and curve which so many of these patterns display.

¹ Near Avebury, Wilts; excavation of this site has been carried on annually since 1925.

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Evidence is not lacking to show the use of sinews, twisted or knotted, in the making of cord patterns, which are indeed easily distinguishable from the cord impressions made with twisted threads or plaited grasses. Unlikely that the longer and stronger sinews which might be put to sterner uses would be spared for such frivolities, the little strings from the legs of small birds or animals would be useful for this domestic craft and the bone, from which such sinews had been removed, actually presents a much more usable tool for the decoration of unbaked clay than do the sinews themselves.

There can have been no dearth of these bones amongst the débris of finished meals ; and if, as seems probable, the making of this coarse, primitive, pottery came within the woman's sphere (and, if the remains of feasts uncovered at Windmill Hill, with their invariable fragments of pottery amongst the bones, flints and heating-stones, are any criterion of habitual extravagance with the household crockery, she must have spent many an afternoon renewing the domestic ware) how simple to stretch out a hand for a little bone, probably already nicely picked and cleaned, and make with it one or more of the almost infinite number of patterns which these as tools are capable of producing.

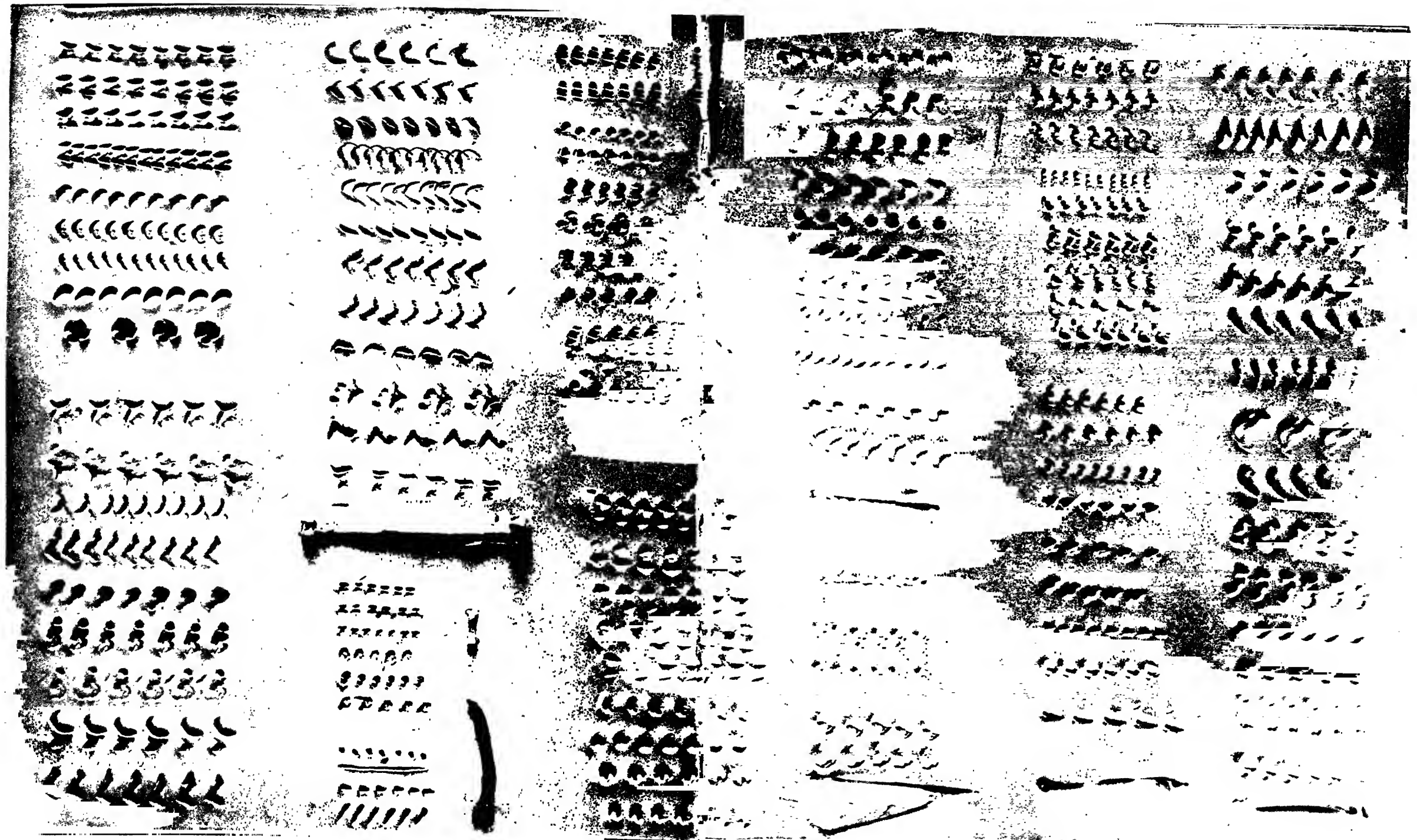
The variety of designs obtainable from any one bone must be essayed to be believed.

Plate I will give a slight idea, showing as it does over one hundred different patterns produced by eight small bones, the whole series being made with the leg-bones and larger wing-bones of a black-bird (*Merula merula*), except three which are made by the articular processes and the tip of the lower bill.

It will be seen that the first thirty rows of impressions are produced by one tibia alone ; the first nine with the distal and the remainder with the proximal end.

All the impressions in this illustration (with the exception of the round ones resembling volutes, which are made by pressing the distal end of the bone squarely into the plasticene and revolving it a half turn between the fingers) are obtained by a straightforward downward pressure of the bone held vertically between the thumb and fingers, or by holding it something after the manner of a pencil and applying one or other edge of the articular surface at a time.

All of these are made with the right hand and by the same person, and in no case (save the one noted above), has any artifice such as dragging, twisting or drawing with the bone been resorted to. By all of these manipulations and by others such as slightly pressing to the



SERIES OF IMPRESSIONS MADE WITH BONES OF A BLACKBIRD

NEW LIGHT ON AN OLD PROBLEM

left, or pulling to the right, or sloping the design so that the upper end of each impression overlaps the lower end of the next, still other designs can be formed ; also different people handling the same bone or using the left hand instead of the right, will produce further variations.

Multiply these by the variety of birds obtainable and the result is startling.

The bigger the bird the greater the number of designs possible, the longer shaft of the bone permitting of more acute angles being tried without the fingers interfering with the surface of the clay or plasticene.

Plate II shows a very small selection of the more elaborate designs made with pigeon (*Columba palumbus*) bones. The first six rows are made in pairs constituting only three lines of impressions. The bones used are : (1) humerus, (2) radius, (3) ulna, (4) tibia, (5) femur, (6) tarso-metatarsus.

In very few cases is it yet claimed that the exact identity of any species of bird used is established, only a limited number of the more common ones having so far been tested. Pliny vouchsafes the popularity of the sheldrake as a dish amongst the ancient Britons, and in the same chapter describes the bustard and the capercailzie.² Cranes and large flocks of quail were also very common, as were beavers,³ but all these are less easily obtained today for experimental purposes.

The question as to whether one of the larger bones of a small bird, or a similarly shaped small bone of a large bird is responsible for a given design is also occasionally debatable.

The small mammals, rat, stoat, weasel, squirrel, hedgehog, etc. which have been tried have not, on the whole, yielded as satisfactory results as have the birds ; and it may be questioned whether these were used at all and whether, in the few cases which follow in which animal bones have been employed, an equally convincing result may not presently be obtained with bird-bones.

Whether this choice was backed by superstition, must remain a matter of merest conjecture ; but bird-life and bird-ways have from earliest times been invested with magical attributes and made the vehicle of omens and portents some of which, in a mercifully attenuated form, persist to the present day.

Birds were evidently in favour at the dawn of history in these Islands, for they figure in the oldest stone carvings. Herodian⁴

² Pliny, *Hist. Nat.* x, 29.

³ Giraldus Cambrensis. *Itin. Camb.* II, c.3.

⁴ Herodian, III. 14.

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describes the ancient Picts as tattooed with the strange shapes of beasts and birds ; and the remains of small birds, chiefly the legs, occur constantly in the Dolmen burials of Brittany, while a goose was found in a long barrow at Stonehenge.⁵

In comparing the accompanying photographs, which are all actual size, allowances must be made for disparities caused by the difference in texture of the original pottery on which, by reason of its coarseness, the sharpness of the detail is blurred or does not take effect, and the plasticene used for these experiments which shows every sinew mark or convolution of the bone with vivid clearness.

The first six examples shown are from the National Museum of Antiquities in Edinburgh—the museum reference numbers being quoted in brackets.

Fig. 1 shows the photograph of a cast of part of the design on a very beautiful flat-bottomed urn from Duncra Hill, Pencaitland (EE 81), and fig. 1a a similar pattern produced with the proximal end of the humerus of a rook (*Corvus frugilegus*).

Fig. 2 (EE 93) is a cast of a portion of the design which is dotted irregularly over the entire surface of an urn from a cist at Ardachy near Burnessan Mill. 2a is a reproduction of the design made with the proximal end of the humerus of a weasel (*Putorius nivalis*). Some other bones produce a cloven circular impression very like this, notably the femur of a pigeon and the ulna of a little owl, but there is too much detail rendered by both of these.

Fig. 3 is an actual photograph of a portion of a very perfect little urn from a short cist at Bridgeness, Bo'ness (EE 113)⁶ and 3a shows a reproduction with the proximal end of the femur of a magpie (*Pica rustica*). The surrounding triple rows of 'maggot' pattern which can be produced with short 'ticks' by the same, or almost any other, bone are obviously not so made in this case, being a recurring pattern which is repeated every 10 to 12 strokes ; no effort has therefore been made to reproduce them accurately.

With regard to these semicircular impressions it will possibly be claimed that they could equally well be made with a stick. They *might* be—but it must be carefully noted that the circumference of each impression is not circular, but finely arched, and into these arches this particular bone fits as if the clay had been moulded round it. If

⁵ Thurnam, 'Ancient British Barrows', *Archaeologia*, XLII, 183.

⁶ *Proc. Soc. Ant. Scot.* (1923-4) LVIII, 290, fig. 6.

NEW LIGHT ON AN OLD PROBLEM

this is coincidence, it is but one more link in a chain of coincidence which is steadily becoming too heavy for Chance to bear.

Fig. 4 (EQ 216). The original, which is from Mill of Marcus, consists of two very beautiful fragments of an urn which had a deeply fluted band (rather like the segments of a pumpkin) round the shoulder and deep chevronwise incisions round the neck. The fragments show four variations of ornament, all of which can be produced with the same bone. Two are shown here, both of which are made without altering one's hold of the bone. They are made with the proximal end of the humerus of a rook. This, though right in size, was not the actual bone employed originally, the 'neck' of the design it produces being a little long and the angle of the 'head' a trifle too acute. A starling (*Sturnus vulgaris*) bone gives the correct outline though, of course, much too small. The happy mean should not be hard to find. The little 'break' half way down the back of each impression should be noted in both photographs.

Fig. 5 (Hedderwick 1) presents a problem which is still baffling, being entirely reproduceable by bone except for the small dimples or 'eyes' which occur at the bottom of each of the smaller or 'double-dot' impressions, and which have led elsewhere to the conclusion that they were made with reeds. If so—what made the larger ones? In favour of the bone is the fact that both the 'double-dot' and the larger 'hour-glass' patterns can be reproduced not only by the same bone (in this case the tibia of a magpie), but by the same end of it, using the anterior part of the distal end for the one and, with a half revolution in the fingers, the posterior surface for the other.

These 'eyes' would be caused by the tiniest depression in the surface of the bone and can easily be made singly by other bones, e.g. femur of partridge (*Perdix cinerea*) or magpie. The identification of an animal with this peculiarity may present no problem to a biologist, but nothing of the kind has so far found its way into the small collection of common local fauna from which these experiments have been made.

Fig. 6 (EE 58) from Shisken, Arran, is amusing. This solitary little block of five vertical rows of four tiny horizontal lines each occurs, quite haphazard, beside the lug of an urn entirely decorated with incised chevrons and with a geometrical pattern of stiff triangles running round its shoulder. The spacing of the lines is exactly that of the tarso-metatarsals of a bird (the details of which vary enormously with the different species), and those of a blackbird (6a), are precisely the right size (see also column 3, pl. 1).

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Fig. 7 is a fragment (no. 28) from the West Kennet long barrow collection in Devizes museum, as are the following seven to no. 14 inclusive. The numbers in brackets are the key references in Mrs Cunningham's publication upon the subject.⁷

This impression shows again the tarso-metatarsal spacing on a larger scale. This time the little 'thumb' which is very slightly attached is left adhering to the bone, giving an extra stroke to the design. The reproduction is made with the bone of a carrion crow (*Corvus corone*).

Fig. 8. In this fragment (no. 7) the impression is very shallow; in the plasticene, 8a, the impressions, which are made with the claw of a fox (*Vulpes alopes*), are too deep, showing some unnecessary detail, but the essential lines of the outline are the same.

Fig 8b shows another version produced by the proximal end of the digit of a goose. It is not actually so accurate, but is another instance of very similar designs being possible from bird and beast.

Fig. 9 is interesting, being as exact a replica of the two impressions on the tiny original fragment as could possibly be contrived, the bone fitting into the original as a key into its own lock. It is formed by the proximal end of the ulna of a rook (each pressure producing simultaneously the little triangle and the dot below it), and is identical in size and shape, showing even the tiny cleft at the base of the upper portion of the design.

Fig. 10 is another case of 'perfect fit' and can be reproduced absolutely accurately with the proximal end of the tibia of a blackbird. Variations of this 'motif' will be seen in the top half of the second column in plate 1.

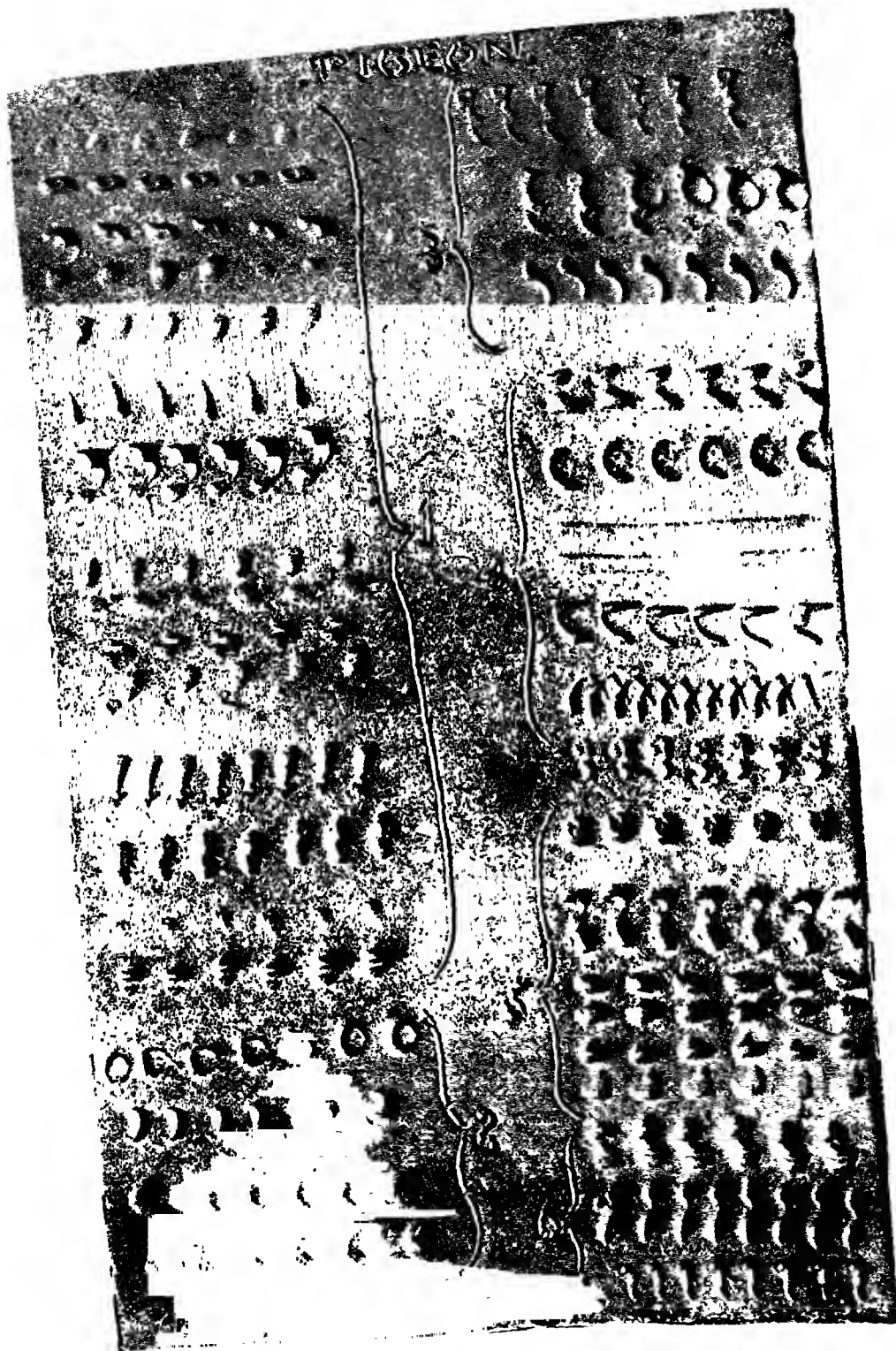
Fig. 11 is a small piece of rim (no. 13) with a raised band closely ornamented on the curved surface with a minute design which can be repeated with the proximal end of a femur of sparrow (*Passer domesticus*), sloping the impressions so that they overlap.

Fig. 12. The design consists of alternate rows of cloven 'goat's-foot' pattern and of semicircles with somewhat expanded extremities. These can both be reproduced with the digit of a goose using the distal end for the 'goat's foot' and the edge of the proximal end for the crescents.

Fig. 13. The fragment (no. 3) shows two rows of very blurred 'goat's foot'. Both can be made with the distal end of digit of goose.

⁷ M. E. Cunningham, *Pottery from the Long Barrow at West Kennet, Wilts.*

PLATE II



IMPRESSIONS MADE WITH PIGEON BONES

PLATE III



FIGS. 1, 2, 3

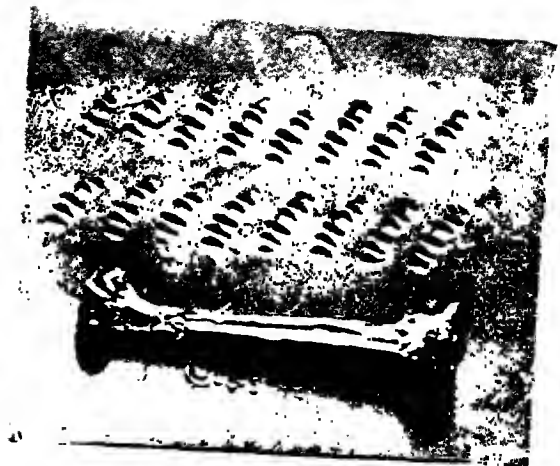
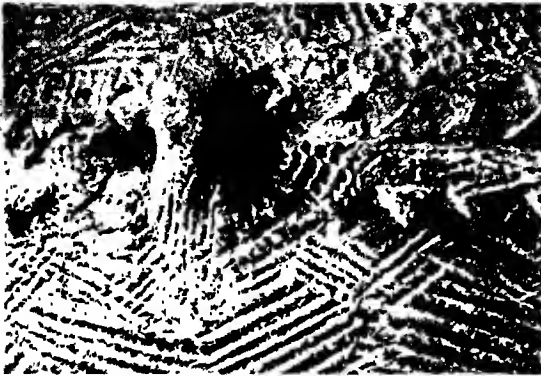
FIGS. 1A, 2A, 3A

PLATE IV



Figs. 4, 4v

PLATE V



FIGS 5, 6, 7

FIGS 5A, 6A, 7A

PLATE VI

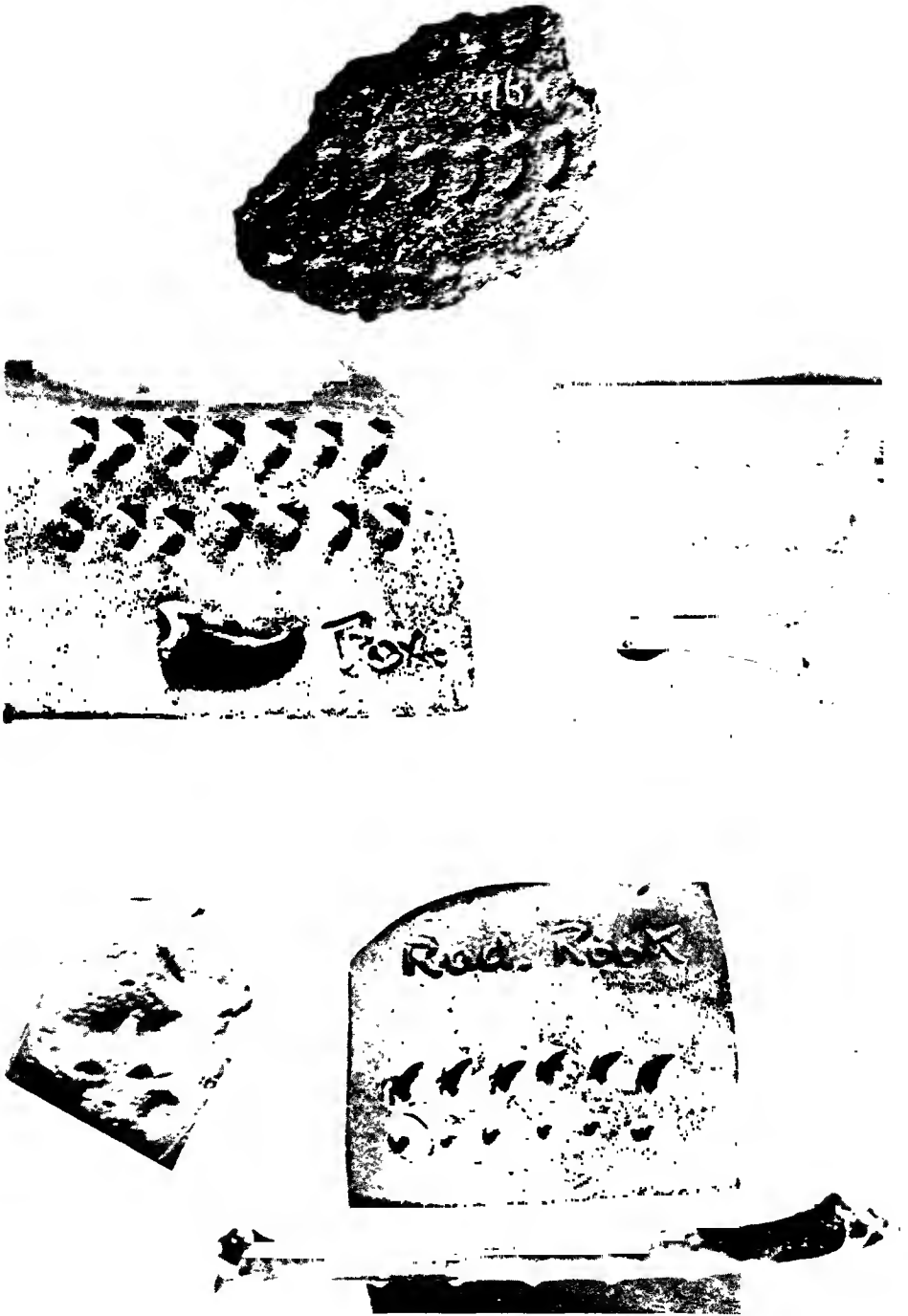


FIG. 8

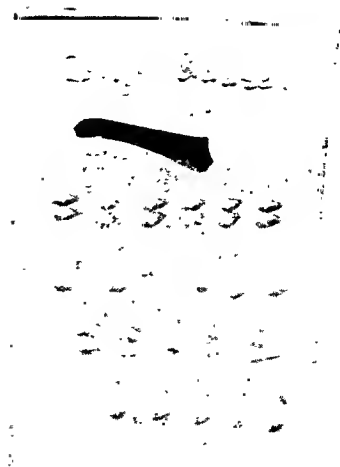
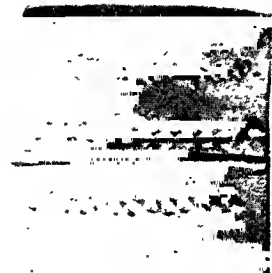
FIGS. 8A, 9

FIGS. 8B, 9A

PLATE VII

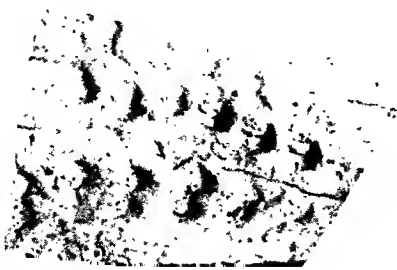
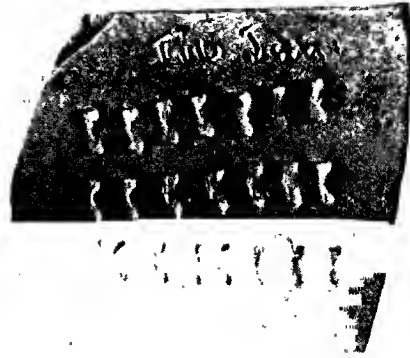
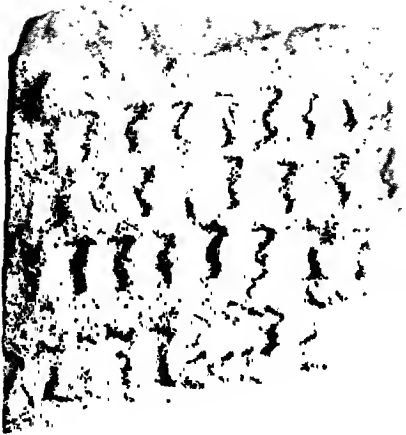


FIGS. 10, 11, 12



FIGS. 10A, 11A, 12A

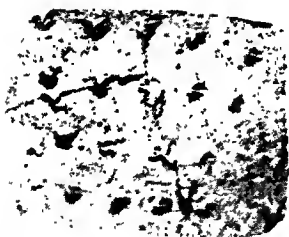
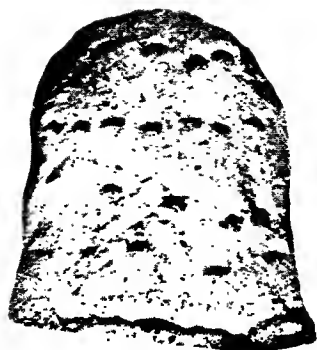
PLATE VIII



Figs. 12, 14, 15

Figs. 13a, 14a, 15a

PLATE IX



Figs. 16, 17, and 18, positive and negative

Figs. 16A, 17A, 18A

NEW LIGHT ON AN OLD PROBLEM

Fig. 14. The original impressions are very shallow and confused, having been made in very wet clay but can be copied with the distal end of tibia of jay (*Garrulus glandarius*).

Fig. 15 is of a pathetically unflattering cast of a small section of the decoration on the smaller of Mr. G. W. Smith's exquisite 'Mongewell' bowls. This shows the tibia ornament again, the crescents being produced by the exterior surface of the same (distal) end of the bone, a quarter turn in the fingers giving the necessary alteration of position.

In the copy 15a, the crescents fit exactly but there is a slight discrepancy in the other pattern, the space between the condyles being a trifle wide. In some other birds (e.g. the waterhen, *Gallinula chloropus*) the condyles are more oblique but the size incorrect. This identical impression appears again in conjunction with cord and finger decorations on one of the West Kennet fragments (no. 16).

The next three specimens are from Abingdon (now in the Ashmolean museum, Oxford) which appears to deal exclusively in miniature editions.

Fig. 16, for which the digit of a magpie has been employed, is another case of an absolutely perfect fit. The cast is taken from a very curious and beautiful broad thin lug which is actually luted on to the rim of the vessel. The ornament is continued on the body of the pot.

Fig. 17, reproduced with the digit of a hedgehog (*Erinaceus europaeus*), is no less accurate.

Fig. 18 is a digression—but being an exact counterpart of this pretty fragment of rim and made with the end of a goose-quill, it has insinuated itself into these pages in the guise of a relation.

The photograph of the negative of the cast shows the resemblance to the quill tips.

It is interesting to observe that during use the quill occasionally plugs itself with a little wad of the paste, which causes the absence of the characteristic dot from the bottom of the next few impressions, when it will clear itself again.

Fig. 19, a portion of an urn from a cist at Duncra Hill, Pencaitland (Edin. EE 80), displays two elements of decoration which, though not solely characteristic of this type of ornament, do nevertheless frequently form part of it; namely, the circular impression and the straight line. The former seems to resolve itself into three kinds: the punched hole, in which the centre is either pushed through forming a bulge on the surface of egress, or is completely removed; the rough hole with a

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flat or irregular bottom which would show square or pointed in section ; and the hole which is perfectly smooth and would show a semicircular section.

This last variety could not be made with a stick unless smoothed and shaped like the tip of a billiard-cue ; but the head of the femur of any bird or animal will reproduce these smooth holes in countless varieties of size, depth and graduation of curve.

Those shown in fig. 19a are made with the femur of a stoat and the lines with the trochanter of the same bone.

This type of straight line shares this same roundness of section. A negative impression taken from this particular pot shows the lines to be perfectly semicircular in section. Almost any projection of bone produces this, while the condyles of the tibia are not only very convenient to use, but have the advantage of being able to make, if desired, parallel lines.

A series of pots illustrated in the Report of the excavation of Todoroki shell mound (Japan), XLVII, nos. 73-86, are decorated with these lines. The backs of several of the vessels are shown where the craftsman, having embarked on the voyage round the neck of the pot, has habitually failed to join up, on return, with his point of departure. The lines are shown leaving and arriving at all angles and the significant fact is very obviously demonstrated that all these lines are drawn in pairs.

Fig. 20, the last illustration, is inserted for the diversion of adherents of the 'duck' theory. It is a simple impression from a pigeon's rib.

This is the case for the bone and its claim to recognition, in its unworked state, as a primitive artistic implement, as far as it has been unfolded by these initial experiments.

It is a most simple and fascinating form of research which anyone can pursue for themselves ; but let the amateur, who is sufficiently interested to risk being seen creeping home in the dusk with the remains of a rook which has earned long-service recognition as a scare-crow ; or with a pack of local dogs sniffing behind a basketful of valuable corpses pilfered from the keeper's vermin-pole, be prepared to accept a reputation even harsher than that usually meted out to the field-archaeologist, and be thankful indeed that two centuries have elapsed since the days when participation in such rites as the stewings and brewings which next follow had its usual termination at a stake.

PLATE X

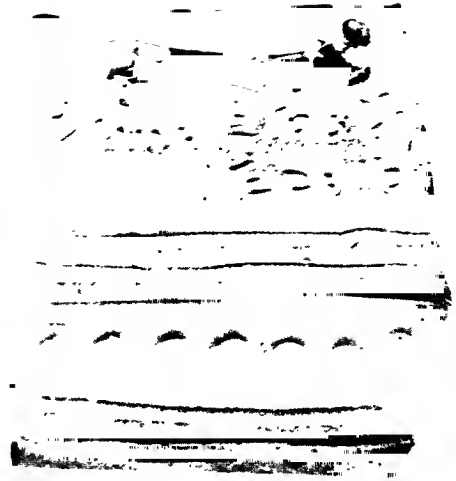
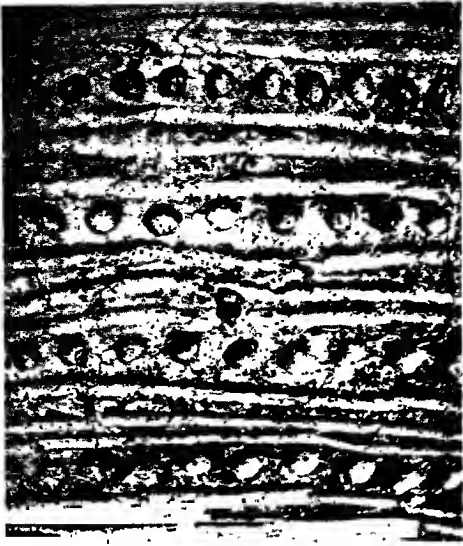


FIG. 19

FIG. 19

FIG. 19A

NEW LIGHT ON AN OLD PROBLEM

Very sincere thanks are due to Mr J. Graham Callander, F.S.A. Scot., Mr E. Thurlow Leeds, F.S.A., Mrs Cunningham, and Mr G. W. Smith, for their kind permission to reproduce photographs and for providing facilities for taking the casts of various pieces of pottery which appear in the above illustrations.

Arthur's Battles

by W. G. COLLINGWOOD

ARTHUR'S knights are myths. They can be traced to Celtic deities, and there is no history to be gathered from attempts to analyse legends about them. But Arthur himself is not a myth: he is a tradition. Nobody has succeeded in identifying him with any god of prehistoric Europe. He arrives unadorned, at first; it was only later that romances dressed him up in the trappings of a Viking Age hero. He is announced simply as the Roman-Briton who won twelve battles against the Saxons. 'Nennius', who says this, is as unknown as Arthur himself, but the statement is backed by the very definite mention of the crowning victory at Mount Badon in the bit of autobiography of Gildas, and by the acceptance of this by Bede as a fact.

One need hardly doubt that there was a battle of Mount Badon, fought in an unknown place and at an unknown date, some time before A.D. 520. The rest of Arthur's battle-sites listed by Nennius are incredible, as placed up to the present, not so much because Nennius is suspect as because they have been located in districts where Arthur—if he existed—could not have fought Saxons. In the period assigned to him there were no Saxons of any sort in Scotland, Northumbria, Wales or 'West Wales'. There were the Jutes in Kent; attacks by pirates on the south coast, but not yet the settlement that became Sussex; and a series of incursions, gradually becoming the Anglo-Saxon settlements, up the Thames and other rivers from the east; nothing to north or west of this before A.D. 500. It is useless to look for Arthur's battle-sites anywhere but round about the area, once highly Romanized, in southern England, in the country south of the Thames and west of Kent.

If it can be shown that enough remains to suggest identification of the battle-sites on the fringe of this area, the story of Nennius becomes credible. It is not proved, but it is not the nonsense it has been supposed to be. The whole of the list cannot be fixed, in the present state of study; but too complete a solution of the puzzle would be premature, and suspicious. And yet some of the places which Scottish writers

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have found in Scotland, the Welsh in Wales, others in the north or west, can be found where inference from archaeology and history would direct one's search, that is to say in Sussex. Nennius says that it was against Kent that Arthur fought.

1.—The first battle was at the mouth of the river Glein (or Glem). Dr Ekwall, in his recent *English River-Names*, accepts the name as equivalent to that of the Glen in Northumberland; but there is another in eastern Sussex, the Glynde (in 1274 Glinde: the 'd' as in Celtic spelling, e.g. *Circind* for *Circinn*). Its mouth or *aber* is its junction with the Ouse near Lewes, beneath the Caburn, a British hill-fort which the explorations of Pitt-Rivers in 1878 and of Drs Eliot and Cecil Curwen in 1925 have shown to be a site occupied up to about A.D. 100, and therefore not in what is supposed to be Arthur's time. And yet on the slope of the Glynde hill the Curwens found many pits, which still remain to be explored, and may turn out to be battle burials. Now it is obvious that the Jutes would push westwards, and that if Britons tried to hold them up, this main pass into Sussex would be the scene of resistance.

2, 3, 4, 5.—The next four battles were on the river Duglas or Dubglas in Linnuis or Linnis. Such a series means a prolonged attack from a settled enemy, foiled at the main pass but trying, so to say, the back door. The back door into Sussex from Kent would be the Roman road through the Weald going south past Edenbridge and crossing a branch of the Medway called the Kent water, being the present boundary between Kent and Sussex. This stream, Ekwall has found, was in 1288 called 'le Black', which is simply English for Dubglas, a very common river-name. And further, the district of Linnuis can be understood as including this bit of country, again by the help of Ekwall's *River-Names*. He shows that in 697 the East Rother was called Liminea and in 768 the people of the district (eastern Sussex and round about) were called Limenwara(s), being in an elm-forest. A parallel name is Lennox in Dumbartonshire; the Leamhain, now by aspiration of the 'm' the Leven, is the river of the district of Leamhnach, Levenach, Lennox, the Land of Elms. The same aspiration of the 'm' would operate, perhaps later than 768, among Celtic speakers, making Limin(ea) into Leven and its district into Linnuis, which has naturally been taken for the better-known Lennox in Scotland. The early English took over from the British such district-names as Bernicia from Brenneich, Deira from Deur; that there was a British survival even in south-eastern England is hinted by such names (if their derivation from *weala* be

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possible) as the Walland marsh, and Wannock, the Welshman's nook ; and the survival among Welsh speakers of 'Duglas in Linnuis' for the Blackwater in this land of the Limenwara is anything but impossible. Moreover, this is just the place where, after a repulse on the Glynde, the Kentish Jutes would try to force their way into British Sussex.

6.—The sixth battle was on the river Bassas or Lussas. No river Bassas is known. Skene thought he found the root *báss*, a mound, and the site of this battle, in Dunipace, near Falkirk ; but if Bassas is the right reading it may only have meant the river by the hill or hill-fort or tumulus, and we are left in the dark, for there are plenty in Sussex. If we read Lussas, Ekwall warns us off the Loose in Kent, otherwise tempting, which he judges to be a back formation from the name of the village, meaning 'pig-sty'. But Lussas may have been a river-name in the south, akin to Loddon (if that is parallel with the Gaulish Lutosā, now the Loze) or Looe (if that meant something like *loch* : for which see Ekwall, *op. cit.* 258f), and all that can be said here is the suggestion of a possible south-country site and Bassas as the preferable reading.

7.—The Cat Coit Celidon was the next battle, the war in the wood of Celidon (in Silva Celidonis). That it does not mean the Scottish Caledonia is shown by its being placed by Geoffrey of Monmouth, himself a Celt, in the Midlands, though he confused this battle with one of the Viking Age (*Hist. Brit.* ix, 3). Indeed *celyddon* seems to have been used of British forests generally, and the most famous was the Weald. If it be allowed that this fighting was against the Jutes of Kent ; that they were still trying the back door by the Roman roads ; that they had been driven back on the road from Edenbridge and then tried the next road that led to the hill-forts west of Lewes ; naturally a further attempt would be by the Stane Street to attack Chichester.

8.—The Castle of Guinnion, where this battle is placed by Nennius, looks like a translation of a phrase that would be in Welsh 'Caer Wen', or 'Caer Gwent', which implies a Roman-British town known as Venta-something. The best known is Caerwent, formerly Venta Silurum ; and because it is not far from Caerleon, the Roman Isca, most people have supposed that Arthur's 8th and 9th battles, the 9th being at 'Cair Lion', were fought west of the Severn. Nothing could be more unlikely ; there are no evidences of Saxon advance so far, at the date supposed. But there were other places called Venta, and Venta Belgarum was Winchester, where early Saxon remains have been found. To Winchester, Saxons might have penetrated either by the road from Silchester or by the road from the south coast ; for the sack of Anderida was only

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one of their many descents upon the rich shores of Sussex and Hampshire before they got a permanent footing in that district. It is a far cry from the Jutish kingdom overland to Winchester, but easy for a raiding band of pirates to overcome what remained of Clausentum (Bitterne near Southampton), and march up the country, to be met by Britons from Chichester or wherever were the headquarters of the main power which until then had kept Sussex from the Jutes.

9.—The Anglo-Saxon Chronicle under 501 has a story about Port, who 'landed at Portsmouth and slew a young British nobleman'. But before that time Portchester had been Portus Adurni and a Roman fort; not legionary in the proper sense, but after a couple of centuries perhaps remembered as connected with Roman troops enough to be thought a *castrum legionis* and called a 'Caer Lion'. We need not look for the ninth battle so far away as Caerleon in Wales or Chester, if the rest of our placing holds together, though Nennius says it was 'in urbe Legionis (quae Bryttanice Cair Lion dicitur)'. It is to be noted that the last phrase ('called in British Cair Lion') occurs only in the Paris MSS. known as M and N, which have been extensively interpolated; and the interpolator thought it safe to suggest Caerleon-on-Usk or Chester for the simple *urbs legionis*.

10.—The tenth battle was on the shore of Tribruit or on Trat Trevoit. That is, it was on a tidal estuary, a *traeth* as they still say in Wales. *Tri* might perhaps mean a crossing, as Ekwall interprets it in connexion with the name of Trent (Trisanton; *op. cit.* 417); but *tri* or *tre* in various British languages also means 'three'. In Gaelic, according to Joyce (*Irish Names of Places*, 505), there was a word *braghad*, 'throat' or 'gorge', applied to river-channels; his instance is the valley of the Braid, co. Antrim. Ekwall, discussing the Dorset Brit (early form *Brute*) infers a Celtic *Brutio- or *Brutia, meaning a 'rushing' river; and for the Somerset Brue, in 681 *Briuu*, he suggests a base *briw*, the 'strong' river. It is weak to argue from alternatives, but *tri+brut* would be descriptive of the triple estuary of Chichester harbour with the tide running; and its shore would be accurately described as *trath tri-bruit*. The occasion might be another piratical landing of which the Anglo-Saxon Chronicle preserves many, though confused, traditions.

11.—Mount Agned or Cat Bregomion or Breguoin was the eleventh, glossed in MSS. M and N as Cat Bregon. Agned has been identified, on the authority of Geoffrey of Monmouth (*Hist. Brit.* II, 7), with Edinburgh; together with speculations about 'Bregon' which is

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supposed to point to the Picts. But the word seems to mean no more than 'of the hills': Irish *bri*, Cornish and Breton *bre*, Gaulish *brega*, *briga*. If Mount Agned could be identified with any of the many hill-forts from the Caburn to Old Winchester, near which are Saxon burials at Droxford, it would be only in harmony with the waifs of evidence we have been finding towards the general suggestion that Arthur must be looked for in Sussex. But on this point we have no further light.

12.—And finally, it is a lame conclusion to confess that no further light has yet come upon the twelfth and crowning victory at Mount Badon. Bath and the Badbury Rings have long since been given up. There is no reason to suppose that battles with Saxons, of any importance, were fought, at the time alleged, so far west. There is no mass of Saxon burials of an early date to justify the notion; only the old connexion of Arthur with Somerset and Cornwall, which comes from the much later—tenth and eleventh century—adoption in 'West Wales' of legends about his knights. The legends are not local tradition: they were probably imported from Ireland, and they took root in this district, still British, before the West was thoroughly anglicized. Hence Tintagel and other locations of the Arthurian cycle, ancient but not nearly so ancient as the bald list in Nennius of Arthur's battles, for which the geography of the Saxon settlements forces us to look in the direction in which we have found much, and others may find more.

APPENDIX

At the suggestion of the Editor a transcript of the best text of Nennius on Arthur's battles has been kindly supplied by Mr R. G. Collingwood, M.A., F.S.A., who also comments on the omission of reference to the Wansdyke. It appears to have been made to defend the Britons from the Saxon settlements and about the period assigned to Arthur; it would be natural to look for battle-sites in its neighbourhood and near the Bokerly dyke—indeed, as Arthur's latest battles have not been placed, further enquiry might take this suggestion into consideration; but Nennius seems to state that Arthur began with the Jutes of Kent, as the following passage shows (*Historia Brittonum*, cap. 56, from Mommsen's *Chronica Minora*, vol. III, fasc. i, p. 199; notes on variant readings here put into square brackets; MSS. M and N including late interpolations as mentioned above):—

'In illo tempore Saxones invalescebant in multitudine et crescebant

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in Britannia. Mortuo autem Hengisto, Oetha filius eius transivit de sinistrâ parte Britanniae ad regnum Cantorum et de ipso orti sunt reges Cantorum. Tunc Arthur pugnabat contra illos in illis diebus cum regibus Brittonum [et licet multi ipso nobiliores essent ipse tamen duodecies dux belli fuit victorque bellorum (M.N.)] . . . primum bellum fuit in ostium fluminis quod dicitur Glein [Glem, Gem, Glemu in some MSS]. Secundum et tertium et quartum et quintum super aliud flumen quod dicitur Dubglas [Duglas in several MSS. ; Dubglass in *Nennius Interpretatus*] et est in regione Linnuis [Linuis, Inniis]. Sextum bellum super flumen quod vocatur Bassas. Septimum fuit bellum in silva Celidonis [or Calidonis, also Callidonis ; Calidonis in *Nennius Interpretatus*] id est Cat Coit Celidon [cac, toit, oit, celidan ; i.e. 'c' for 't' and *vice versa*, as often misread ; and 'oit' with the initial lost by aspiration in composition]. Octavum fuit bellum in castello Guinnion [Guinnon, Guinon, Gunnion], in quo Arthur portavit imaginem sanctae Mariae perpetuae virginis super humeros suos et pagani versi sunt in fugam in illo die et caedes magna fuit super illos per virtutem domini nostri Jesu Christi et per virtutem virginis genetricis eius. Nonum bellum gestum est in urbe Legionis [quae bryttanice cair lion dicitur (M.N.)]. decimum gessit bellum in litore fluminis quod vocatur Tribruit [Ribroit, Robroit, Trahtreuroit, Tractheuroit. Robroit in *Nennius Interpretatus*]. Undecimum factum est bellum in monte qui dicitur Agned [Agned cat Bregomion, Agnet tha Bregomion, Agned cath Regomion, qui nominatur Breguoin (Breuoin) ubi illos in fugam vertit, quem nos Cat Bregion appellamus (M.N.)]. Duodecimum fuit bellum in monte Badonis [contra Saxones durissime Arthur bellum in monte Badonis (Hadonis) perpetravit (penetravit), M.N.] in quo corruerunt in uno die nongenti sexaginta viri de uno impetu Arthur . . .

The 'Wild Animal Path' Origin of Ancient Roads

by FRANK G. ROE

THE opinion which attributes the origin of ancient winding roads in the older lands (including England) to the 'wild animal path to the ford' or drinking-place, is no novelty to most archaeologists, even if they have made no special study of the subject. Many also are doubtless familiar with the argument from the 'buffalo trails' or paths of our Western plains, which has been adduced in support of the theory. The manner in which the buffalo argument has been used by its champions manifestly indicates a confident conviction that it is so entirely conclusive as to banish all reasonable doubt and virtually settle the question. So far as I have been able to discover, apart from the humorous suggestion in the well-known verses about the 'wobbling calf',¹ (unless I include Mr G. K. Chesterton's almost equally serious contributions to the subject²), the buffalo are practically the only animal illustration drawn from historic times;³ perhaps naturally and inevitably so, for the process would necessitate gregarious hoofed animals of great size and in large numbers. Without the buffalo, apparently, the question would be driven to rest upon the relative force of various possibilities, which in the nature of things could never be proved. This being the case, it seems neither unfair nor illogical to suggest that the soundness or unsoundness of the buffalo argument becomes of the highest importance to the credibility of the wild animal theory at large. The general implications of that theory do not, as I have remarked, admit of historical investigation; the 'buffalo influence' does. The object of this paper is to present historical evidence concerning the

¹ I refer to those given by Jerrold, *Highways and Byways in Middlesex*, p. 257, as 'copied from an American magazine'. There may be others.

² 'The rolling English drunkard made the rolling English road'. Elsewhere he speaks of the road 'curving away'—'And here because the dog barked loud'.

³ I shall note one or two stray references to deer or elk; but there is nothing to show that these animals originally made the paths, which are in the buffalo territory in any case.

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buffalo path ; evidence by no means exhaustive, but nevertheless drawn from a fairly wide field of authentic sources, and supplemented by thirty-four years' observation in what was once the heart of the Canadian buffalo country. It is of course obvious that even an entirely unanimous verdict in favour of the buffalo argument would still leave the larger question open—how far that argument could fairly apply to prehistoric England, for example. Although I hold certain tolerably definite views on that question, based upon a large accumulation of evidence, I shall here confine myself to the American continent, and to the influence, real or imaginary, of the buffalo on the origin of trails or roads in Western America. It may perhaps be proper to add that my historical researches were originally begun in no iconoclastic spirit ; it was the discrepancy between the traditional opinion (which I first encountered only some ten or twelve years ago) and my own early experiences, which led me to probe somewhat deeper into the subject.

Of what might be termed didactic or rhetorical opinions there is no lack. Glanced at superficially, the reasoning often seems probable enough ; it is when tested by a precise and localized criticism that it fails to convince. I shall cite briefly one or two instances from both sides of the Atlantic.

A prominent American scholar writes :—

‘It is probable that they (the Indians) first made their trails in the search for food, for which purpose they needed only to follow those already made by the wild animals, especially the buffalo. The portages across country between the water-sheds of the different rivers became beaten paths . . .’⁴

Another writes :—‘On the plains and prairies well-worn trails still remain to indicate the lines of aboriginal travel and trade. These paths also existed along or between the river routes, many of them originally made by deer or buffalo in their seasonal migrations or in search of water or salt. These same early trails (which generally followed the lines of least natural resistance) have since been utilized in many cases by the whites as lines for highways and railroads. “The white man, whether hunter, trader, or settler, blazed the trees along

⁴ Otis T. Mason, in *Handbook American Indians* (cited by Emma H. Blair, *Indian Tribes*, II, 199).

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the Indian trails in order that seasonal changes might not mislead him, should he return'''.⁵

From an English scholar comes one of the best ' rhetorical ' epitomes of the buffalo argument I have seen.

' . . . I have little doubt that some of the principal English roads date from the times in which primitive races settled in this country, if they were not the tracks of wild animals before man adopted and used them. So, in the far west of the United States, the buffalo track, well worn by the regular migrations of the animal, becomes an Indian trail, a mountain or country road, and is constantly adopted, at last, as the line on which a railroad should be constructed. The instinct of the animal and the shrewdness of the savage, only a little higher in intelligence than the animal, have planned roughly the survey which engineering skill examines and frequently approves '.⁶

Two later and most interesting authors (*apropos* of ancient cattle-tracks still visible on Salisbury Plain) remark :

' . . . in the vast plain of Central Canada the tracks of the now extinct herds of buffalo may be seen stretching from horizon to horizon ; these may be traced from one watering-place to another on the route of their annual migrations '.⁷

I furthermore find a resident in the very city from which I write, attributing the windings of Main Street, in Winnipeg, to it ' having once been a buffalo trail '.⁸ This picturesque suggestion—for which he advances no evidence—is sufficiently astonishing ; coming from one who, within half-a-day's journey from his desk, might observe winding trails in abundance in the actual process of making—by Man. As I desire above all things to avoid any suspicion of unfairness, I shall conclude these citations by passages from eye-witnesses of much higher authority ; the last particularly, as a resident in the Canadian buffalo territory for well over half-a-century.

⁵ J. D. McGuire, in *Handbook American Indians* (in Blair, *op. cit.* II, 200). Miss Blair cites a work by A. B. Hulbert, *The Historic Highways of America* (1902-3, 16 vols.) which I have not seen. Vol. VII, 'Portage trails, the key to the continent' deals with this subject.

⁶ Thorold Rogers, *Agriculture and Prices*, IV, 692 ; cf. *Economic Interpretation of History*, p. 490.

⁷ A. J. and G. Hubbard, *Neolithic Dew-Ponds and Cattle-Ways*, 1905, pp. 51-2.

⁸ A. F. ('The Town Bellman'), *Edmonton Journal* (Canada), 31 March 1928.

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Lewis and Clark (1804-6) state about buffalo, 'As these animals have wonderful sagacity in the choice of their routes, the coincidence of a buffalo with an Indian road,⁹ was the strongest assurance that it was the best'.¹⁰

Sir William (then Captain) Butler described the 'immense plains stretching far into endless space' around the Touchwood Hills as 'seared with the tracks of countless buffalo now gone' (1870)¹¹. The final authority, Rev. Dr John McDougall (speaking of a journey through what is now south-west Alberta from the upper Bow River valley across the Foothill country toward the Red Deer River, 1873) says:—

'This time we travelled by a new route through the hills. Old buffalo trails were our bridle paths, and through spots and scenes wonderfully picturesque and intensely suggestive these instinctive engineers of nature led us on'.¹²

In quoting such passages as the foregoing, one might seem to concede the buffalo argument *in toto*. In fact, such early travellers as Lewis and Clark, whose *Journals* were doubtless read by almost everybody, may have helped to originate the belief. I shall have occasion later to cite incidents, from the same writers, that may lead us to doubt the 'sagacity' of the buffalo; together with more specific reference to the precise type of country where these trails were to be found. So far as the level plains are concerned, the 'countless tracks', 'stretching from horizon to horizon', etc., etc., seem to me to be almost entirely supposition. My own acquaintance with Alberta dates only from 1894, after the total disappearance of the plains buffalo;¹³ but there were then only twelve years dividing us from that event, which is generally placed about 1882¹⁴ or 1883¹⁵. It is incredible to me that in that relatively short time, such a maze of tracks, supposedly dating in many cases from prehistoric eras—and quite as probably so in Central Alberta, I should imagine, as anywhere else—could have

⁹ Road, *i.e.* 'trail'. *Trail* never used by L. and C.; always 'road' or 'track'.

¹⁰ *Journals*, III, 208.

¹¹ *Great Lone Land*, p. 217.

¹² McDougall, *Western Trails*, p. 108.

¹³ It used to be said, *c.* 1894, that wild bands of Wood buffalo still remained 'up North' in the Peace River country and beyond.

¹⁴ Hughes, *Father Lacombe*, p. 263.

¹⁵ *Ency. Britannica*, 11th ed. *s.v.* 'Buffalo'. I have somewhere read that in 1876 Fort Benton (Montana) sent 80,000 hides to market; and in 1884, not one!

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vanished so utterly from the land. Cultivation, the prime factor everywhere in obliterating processes, did not then operate to any material extent ; and such ranching as was being carried on (very little then in the Red Deer Canyon country) could only serve to perpetuate and intensify such ancient tracks.

This supposed disappearance would be the more remarkable, for in many places tracks which I believe to have been originally buffalo tracks were plainly visible during the twenty-five years or so from 1882 to settlement of those localities. Such tracks, advancing along the traditional—or hypothetical—line of progress through the Indian trail stage to the recognized highway route, were certainly not 'lost in made roads'; for there were no made roads in Alberta in the early nineties. Even the Calgary and Edmonton Trail, an expropriated contour survey independent of 'road allowances', was still only a trail. While not an 'old-timer' in the earlier, western acceptance, I do not speak wholly without knowledge, for I have walked, ridden, and freighted, over miles and miles of what was the very centre of the Alberta buffalo territory; and I say in all seriousness that I have yet to see the buffalo trail of popular imagination, 'stretching out to the horizon', and so on.

It should not be forgotten that on the open level prairie, where they may wander at their will, animals are not content to be mere processions, but spread out and feed as they go. I have collected abundant references to the plain 'thick with buffalo', 'black as far as eye could reach', and the like; but not a single one so far to the 'processional' purpose, in regions where they were independent of topographical considerations, and might go where they would. Yet it seems not unreasonable to think that processions in single file across the plains, extending necessarily for miles on end would strike the traveller's imagination, just as did such processions observed by Parkman, in the defiles of the Black Hills.¹⁶ They would do so quite as readily and forcibly as mere numbers scattered feeding over the plain. In fact, apart from the vague and generalized assertion, such as I have quoted, the mere mention in diaries of travel or exploration of regular tracks in certain places seems logically to justify the inference that they were not found everywhere.

This at least has been my experience. Apart from cowpaths made by domestic cattle—not 'inherited' from the buffalo, for I have

¹⁶ *Oregon Trail*, pp. 314 ; 77, 83, 95-7, 413.

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watched those of my own stock in the making—being driven home regularly from some favoured haunt with no opportunity for grazing *en route* (a totally different thing from buffalo ranging wild!), the only animal paths I have ever seen in level open country were at springs, marshy ponds or lakes.¹⁷ At the edge of the marsh would be found well-defined tracks, often deeply worn. But at such places, whither animals from all directions came to drink,¹⁸ their approach necessarily converged, until at last they were forced to tread in one another's footprints. These tracks extended only a few yards away from the spring and then vanished, as the animals, after drinking or resting, spread out and dispersed to graze once more. I am not competent to say whether this agrees with 'wild animal' experience in other lands or no; nor do I consider such experience in any wise relevant concerning buffalo, as compared with observation in the buffalo country itself.

The 'path to the ford', made by the wild animals coming to drink, and thereby indicating the situation of the ford to the hunter, is, I believe, mainly fancy. The supposition that animals—practically all species of which swim naturally and some even for pleasure,¹⁹ or (what amounts to the same thing) to escape from the plague of flies,²⁰—hunt about for a ford to cross a stream or to serve as a safe drinking-place, is in my view untenable. In my younger days in Alberta, when driving stock a long distance, I have witnessed instances of young animals which to my own personal knowledge had never faced high water before, persistently 'refusing' the muddy approach to the ford across a flooded creek, crossed easily by the old cows with but a few strokes of swimming, and leaping straight off the bank into twelve feet of water to swim the entire width.

The buffalo is too well authenticated as a swimmer for the relevancy of the foregoing argument to be denied. Father Hennepin, one of the earliest observers of the animal in its northern (U.S.) *habitat*, who encountered it in northern Illinois in 1679, says:—

'They swim over the Rivers they meet in their Way, to go and

¹⁷ Alkali lakes sometimes preferred to rivers; Lewis and Clark, III, 180; see also Hughes, *Father Lacombe*, p. 169.

¹⁸ Quantities of bones found at a spring near High River, S. Alberta. *Palliser Reports*, p. 91 (1857-9).

¹⁹ McDougall, *Forest, Lake, and Prairie*, p. 171.

²⁰ Old-timers from the woodlands often speak of bear, moose, and elk, dashing into the water in their frenzy, oblivious of human intruders.

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graze in other Meadows . . .'²¹ Sometimes the Indians 'sent the swiftest among them . . . who would drive whole Drovers of wild Bulls before them, and force them to swim the River . . .'²²

It is true the worthy Father has been accused of almost everything that could endanger a traveller's reputation, from exaggeration to downright lying;²³ but the swimming does not rest upon his word alone. Lewis and Clark record several instances to the same general effect:—

'A herd happened to be on their way across the (Missouri) river. Such was the multitude of these animals, that although the river, including an island, over which they passed was a mile in length, the herd stretched as thick as they could swim, completely from one side to the other, and the party was obliged to stop for an hour.'²⁴

Lewis and Clark mention other instances;²⁵ and so does Catlin, who, although he terms the process 'making a ford', specifically mentions swimming the river, which was the Missouri again.²⁶ John McDougall witnessed the 'unique sight' of some thousands crossing the north Saskatchewan River about 200 miles below Edmonton, July 1863, but he does not specify swimming.²⁷ It may be added, however, that our western rivers, speaking broadly, are fordable everywhere or nowhere, according to recent weather conditions.

Buffalo also crossed on the ice in winter,²⁸ under conditions necessarily quite different. Their ice-trail might easily be over the very deepest stretch, scarcely fordable at any time; one which, treated in the following summer as a 'path to the ford', might lead straight to disaster.

That 'sagacity' also, of which mention has been made, was not always apparent. I have been told that in dry seasons, when water was not to be had at many customary spots in small creeks and the like, the thirsty herds on approaching a river or lake, would stampede

²¹ Hennepin, *New Discovery* (ed. Thwaites) I, 146.

²² *Ibid.* I, 242.

²³ See the learned editor's Introduction.

²⁴ *Journals*, III, 237.

²⁵ *Journals*, I, 265–6, 306; III, 237, 238.

²⁶ *Letters*, II, 13–14.

²⁷ *Saddle, Sled and Snowshoe*, p. 63; so also, somewhere in the same locality, Sept. 1862, Milton and Cheadle, *North-West Passage*, p. 59.

²⁸ Lewis and Clark, I, 199; Father De Smet, *Travels*, III, 852; McDougall, *Saddle, Sled, etc.*, pp. 255, 270; and a description, Bow River; *Western Trails*, p. 237.

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straight down-hill at a lumbering gallop and rush into the water like mad things, oblivious of fords, drinking-places, shallows, and the rest of it; and so precipitately, that the foremost were frequently trampled under foot and drowned.²⁹ Near Great Falls, Montana, Lewis and Clark remarked :—

‘They go in large herds to water about the falls, and as all the passages to the river near that place are narrow and steep, the foremost are pressed into the river by the impatience of those behind’.³⁰

Father Lacombe’s biographer records something similar during a journey down the Missouri by boat, 1869. The Father speaks of ‘watching herds of buffalo come crashing through the trees on the river bank and precipitate themselves into the current’.³¹

I fear that some scholars, in bringing to the aid of their argument a creature they call a ‘hunter’,³² who needs an animal surveyor to direct him to a ford, and who can only find his way back by ‘blazing’ the trees’,³³ (this too in regions where the only trees are often in the one precise place where nobody need be lost—the river-valley!) merely record their general incompetence to gauge the hunter-mentality. Such a man, living as he can, and a master of the arts of the wilderness, is a different being entirely from even the pioneer settler, resourceful though the latter must be.³⁴ My own case may make the distinction clearer. There are few tricks in the trade of woodsman and pioneer settler that I have not been forced by circumstances to acquire, and so far as knowledge is concerned, I could resume the life to-morrow; but as a hunter I should be the veriest novice.³⁵ The hunter too, is burdened by no cumbrous wagons or ‘women-folk’; he is as independent and care-free as the game he stalks, for when he dare not swim a flooded river with his horse, the animals would be equally timid. So far as the hunter and the ford are concerned, I contend

²⁹ McDougall mentions a similar propensity when excited by a hunter (not meaning ‘Indian pounds’) *Western Trails*, pp. 230, 236.

³⁰ *Journals*, I, 352.

³¹ Hughes, *Father Lacombe*, p. 172.

³² Above, note 5. ‘Whether hunter, trader, or settler’; as if all were alike!

³³ In Hennepin’s journeys, they marked the trees with crosses to identify their party to those who should follow (*New Discovery*, I, 143, 144); a very different thing! Early forest settlers blaze their boundaries and clearings.

³⁴ See on this, Parkman (who had unrivalled opportunities for judging, in 1846) *Oregon Trail*, pp. 15–18, 65–80, 100–3, 132–5, 169, 294–7, 309, 356, 459.

³⁵ For a moose-hunter’s tactics, see Butler, *Wild North Land*, pp. 206–10.

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that fords would reveal themselves to experienced observers, even if there were not a single animal in the country; and they have, I believe, become well-known in such lands as Western America long before the advent of the man who is *compelled* to use them.³⁶

There is in my opinion one vital defect in the attempt to link the human highway with the animal track. That defect is the absence of incentive. All road-making peoples (using the term to signify at least some degree of permanence) have had a definite objective in view. This is not the place, neither am I competent, to discuss the question of aboriginal or prehistoric Indian trade-routes; it is sufficient to say that if such a commerce existed, the incentive is supplied at once. I cannot believe that such a commerce could develop, and then lie dormant pending the fortuitous development of trade-routes in such a manner; neither can I doubt that such a commercial instinct would have asserted itself irresistibly, and found its own routes, even if buffalo or deer had never existed at all.

Incentive I take to mean something more than the desire to gratify the mere needs of the moment, food, drink, or shelter. Even the instinct which leads certain animals to provide for the winter can scarcely be included in the category of incentives, as we apply the term to the far-seeing purposes of mankind. If it could, I know of no species less entitled to be credited with it than the buffalo, among possible trail-makers; for it may be doubted if there ever existed a more aimless, unreliable, incalculable wanderer upon the face of the earth. The fundamental principles of the *water-route* by river and

³⁶ John McDougall's books reveal a calm indifference to fords, also a capacity for judging or finding such when essential. *Saddle, Sled*, etc., pp. 166-74, on his crossing the flooded S. Sask. in 1863, and the resourcefulness shown. Cf. *Western Trails*, pp. 24-5 (Bow and 'Big' Red Deer Rivers); pp. 27, 29-30 (N. Sask.), p. 30 (S. Sask.). 'Finding a ford' in the Red Deer Canyon; *ibid.* p. 48. 'Big Red Deer', all day-finding one, Oct. 1873—'the three requisites, approach, ford, departure', *ibid.* pp. 85-7, 97. Summer 1874—the flooded Battle, Blindman, and Red Deer rivers; pp. 179-81. Swimming the Bow River, 1875, in the summer floods, p. 276. Nine rivers in S. Alberta in 200 miles, all high and strong, 1875; *ibid.* p. 272. See also on this, Father De Smet's *Travels*, I, 222, 308-10.

Mr Watkins (*Old Straight Track*, pp. 42-8) has much to say concerning 'sighting points' to fords to reveal their situation to strangers; but after the first few times by the discoverers, would not their path indicate the direction? Even the circumstance that down certain straight streets the Thames (at high tide—a strange season for identifying a ford!) can be seen from the Strand proves them (to his satisfaction) to be 'leys' (p. 42). He does not say if there is a ford opposite each 'ley' or not.

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lake with its connecting portages ; its persistent adherence to the one particular channel out of many, apparently no better (or even visibly more difficult) than seeming alternative ones ; its ruthless abandonment of this at the point of real—yet perhaps by no means evident—strategic importance ; the careful weighing of the considerations which define the presence or absence of these governing factors in any given instance ;—all these I consider to be alien to every authenticated instinct of the buffalo, and to be unmistakable evidence of its human origin. To look for the beginnings of such a complex organization as the Hudson's Bay boat brigades, for instance ;—converging from the Mackenzie, the Athabasca, and the Saskatchewan, by skilfully-selected water-routes (of whose careful exploration by mankind we actually possess historical knowledge) to arrive simultaneously at York Factory at a predetermined time ;—to seek the origin of this organization in the desultory meanderings of an animal of no very high *proven* intelligence may be deemed picturesque ; to me it seems futile and almost frivolous.

For similar reasons, I entirely disbelieve in the great American transcontinental cart and wagon trails being of buffalo-track origin. The trail along the water's edge of our western streams is impracticable and needlessly difficult for man, and probably of little use to the buffalo, who needed access to and from the water rather than a ' water-grade ' trail by the side of it, such as might serve for a railway. The path ' to the ford ' is the one thing the freighter avoids as long as may be ; and from the ford to more solid ground he hastens as speedily as he can. Furthermore, the general direction of the great American trails like the Santa Fé and the Oregon Trail was parallel with the rivers flowing from the Rockies, and as much along their watersheds back from the edge of the wide river-valley as possible, for reasons obvious to any man who ever freighted in the West.³⁷ On the ' animal path to the ford ' hypothesis, such a route, like our ' green roads ' and ' ridge-ways ' in England,³⁸ is for its supposed animal creators an absurdity,

³⁷ Lewis and Clark (not then on horseback) finding ' dry ravines so steep and numerous along the upper Missouri as to compel them to keep to the river '. *Journals*, I, 322. Later for the same reason (being then on horseback) having to keep back from the edge of the river-valley, on the plain (' bench ') above. *Ibid.* III, 182.

³⁸ See on these, R. Hippiusley Cox, *Green Roads of England* ; Belloc, *Old Road*, etc. *cf.* Lewis and Clark—' pursuing their route over the ridges of the highlands, so as to avoid the bends of the river '. *Journals*, III, 220. Parkman—' The Arkansas? (River) makes a bend, and a smaller trail, known as " the Ridge-path ", leads directly across the prairie from point to point, a distance of sixty or seventy miles '. *Oregon Trail*, p. 452.

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leading from nowhere to nowhere. In the case of the Santa Fé Trail historical evidence appears to indicate that it was of human design :—

‘ It is remarkable how the old plains men who laid out the Santa Fé trail across the State of Kansas and on into New Mexico were able to follow the grades so well and get such a straight road. They simply used their eyes, for in those days there were no engineers on the western plains. “ We tried to beat it with our own engineering ”, W. B. Strang said, “ but we finally ended by following the old trail made by the wheels ” ’.

My argument so far has been of a general character, based on the acceptance or rejection of the opinions of others. I shall now very briefly present my own views on the questions of ‘ regular migration ’ and its corollary—the track.

So far as one may judge from fairly wide testimony the ‘ regular migrations ’ of the buffalo seem to be largely mythical. In fact, if migration is to bear the sense applied to migratory birds (that of regular flight from one country to another), the term itself is almost a misnomer as regards the buffalo. I prefer therefore to speak of their ‘ wanderings ’. The only wanderings in any degree regular seem to have been that the buffalo commonly sought shelter in the scrublands or woods in the dead of winter. This fact has been noted both by scientific observers passing through their territory, and by residents of long experience.

There are many statements by writers which clearly point to the erratic and wholly unreliable character of the buffalo wanderings. In my view this is established beyond reasonable doubt and I incline to the belief that it is possibly the real explanation of certain of the many references to the ‘ disappearance of the buffalo ’.

With regard to the buffalo path, it has, like the ‘ regular migration ’, received much more attention (so far as my investigations have taken me) from the historical generalizer, than from those travellers who might be supposed to be the principal authorities. Buffalo trails are mentioned by several writers but so far I have found only one allusion which possibly—though by no means certainly—indicates the path of popular supposition : *i.e.* one stretching across open country where an absolutely free choice might be made. Lewis and Clark, along the Yellowstone in 1806, mention that ‘ the plain was intersected by several great roads (‘ trails ’) leading to a gap in the mountain, about twenty miles distant. They do not specifically claim these ‘ great roads ’ as

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buffalo trails, although the trail through the gap or pass itself is described as a 'buffalo road over a low gap'.³⁹

Investigation tends to show that these trails were more probably due to the local topographical conditions than to any particular trail-making predilections in the buffalo. In other regions where physical characteristics are similar the Indians themselves had regular trails, which they took pains to keep open.

Finally, a brief remark on the buffalo trail 'which becomes a railway route'; and the sagacity displayed by these 'instinctive engineers of nature' in forecasting the later choice of trained professional men. The secret lies in that incidental clause in the quotation given above, about 'the line of least resistance'.⁴⁰ I incline to believe the paths were made originally *up* the hills rather than down them, for evidence already cited goes to show that the buffalo were ready enough at times to stampede down the hills, as no animal could do for long in going up. It is of course quite true—I have seen more than one such place, including one in the city limits of Edmonton—that railways have been surveyed down the winding valleys of tributary creeks to our great rivers, where something approaching a 'water-grade' was practicable. This is in fact one of the two standard methods of climbing into or out of a deep river-valley; the other being (where the desired route lay roughly along the course of the stream) a winding grade along the hillside; which English readers may see on the London and North Eastern railway main line up the Don valley from Sheffield toward Woodhead summit, one of the few bits of 'American' railroading known to me in England. On a viaduct near Wadsley Bridge station (known to every Sheffielder as the 'Five Arches') the line crosses what is a typical instance of the valley of a creek or a dry 'coulee', such as occur continually along our Western river valleys. It is such places as these down which the buffalo paths are found.

So far as 'sagacity' is concerned, I fail to see any evidence of conscious selection. Precisely as I have noticed many a time with range or domestic cattle, in grazing along the slope of the hillside, their flank would naturally be turned by the creek debouching into the main stream, and they would continue up this narrow valley, the outliers grazing as they went along, the main body nearer the hollow centre forced into one or two paths, for there is seldom one only at any place

³⁹ *Journals*, III, 215, 216, 218.

⁴⁰ See note 5.

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I have seen. Those valleys down which a creek flows, the only ones at all practicable for a railway, occur at intervals of six to ten miles, roughly corresponding to the width of the valleys which they drain into the larger rivers, and which are divided by a succession of low ridges, running north and south even on the so-called ' level prairies '. Between these creek valleys are found the ' dry coulees ' to which reference has been made, and these are often only a mile or so apart. If it could be shown that the buffalo paths were confined to those larger valleys containing creeks, leaving the others (which are only slightly less steep than the main hillside) unused, I should be much more disposed to concede the argument for sagacity. But the buffalo tracks are to be found down all alike ; and the mere fact that out of a mass of roads made by these animals, *some* prove suitable for other uses, proves nothing about sagacity, in my opinion.

To my own knowledge, two such places have been utilized by the Canadian national railways in this district. One, from the Battle River up to Camrose, Alberta, reduces the tonnage capacity of engines by about 25 per cent. The other, a low-level line across the Saskatchewan in the city of Edmonton itself, is virtually prohibitive ; and as I write, the company at great expense are constructing a cut-off some ten miles in length, in order to bring full tonnage across the river on a high-level bridge some few miles outside.

NOTE.—We regret that owing to pressure on our pages it has been necessary to omit much of the detailed evidence for the general opinions stated by Mr ROE.—EDITOR.

The Syrian Town of Katna and the Kingdom of Mitanni

by CH. VIROLLEAUD, Director of Antiquities, Syria

THE name of the Syrian town of Katna is first met with in the El-Amarna Tablets, a collection of 300 letters written in Babylonian and found in 1887 at El Amarna in Upper Egypt. These letters were addressed by the princes of Palestine and Syria to their allies or suzerains, the Pharaohs Amenophis III and Amenophis IV, in the first half of the fourteenth century. Four or five of these letters of El Amarna were actually written from Katna itself. They show us the Prince Akizzi expressing to the Pharaoh Amenophis III his feelings of loyalty, and at the same time asking his help against the Hittites, who then occupied a large expanse of territory in the north of Syria, thus threatening the Valley of the Orontes.

It is known, moreover, that Shubbiluliuma, the king of the Hittites, occupied Katna about 1360, and that he had had transported from it to his palace of Hattushash in Anatolia the spoils which he found there.

We did not know the history of Katna, however, until quite recently, and the site of the town was unknown until the Comte du Mesnil du Buisson, helped by M. Ploix de Rotrou, found it at Mishrifé in April and May 1927. A whole series of documents was revealed, proving that the village of Mishrifé was built on the ruins of Katna. At the same time were discovered the names of the predecessors of Akizzi, the plan of the temple, the composition of the treasure stored there, and finally, the name of the divinity, to whom the temple was dedicated (cf. *ANTIQUITY*, 1928, p. 87, and *SYRIA*, 1928, p. 90 ff).

Three new cuneiform texts were obtained in 1928 at the end of the spring campaign. They form a useful supplement to the references obtained from the documents excavated in 1927. These three inscriptions are quite short. They comprise a fragment of a tablet of small dimensions and two small, less well preserved tablets. They were found almost on the surface, not in the ruins of the temple, but at the foot of the mound on which it had been built.

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The fragment contains a series of prophecies belonging to the fourteenth day of the twelve months of the year, evidently derived from the eclipses of the moon. It is an extract from one of the chapters of that great treatise on astrology of which dozens of fragments have already been found at Nineveh in the ruins of the palace of Assurbanipal—a treatise which the Babylonian priest Berosus must, at a much later date, about 280 B.C., have translated into Greek when he resided at Cos on the Ionian coast, when he gave that course in astrology which had such a success in the Greek world.

It is true that the Katnian fragment teaches us nothing new about the doctrine of the Chaldean astrologers (or as they were called during the Roman period, the Chaldeans). But what makes this document so interesting is the proof it gives that already in the first half of the 2nd century the Syrians had at their disposal extracts from (if not complete copies of) this book, which for so many centuries regulated the life of peoples ; for no undertaking of any kind was begun without consulting it.

One may infer moreover, that the various sciences concerned with divination were not the only ones to be studied on the banks of the Orontes at this remote epoch ; and that the temple of Katna, like all the shrines of Mesopotamia, possessed a regular library. It would not be surprising if we were one day to find in Syria epic poems or Babylonian myths ; since we know that the Pharaohs of the 18th dynasty and the contemporary Hittite rulers in Asia Minor kept, in their archives, copies of such legends as those of Adapa and Gilgamesh.

Further, the excavations of Katna in 1927 revealed the fact that the protecting deity of Katna was a Babylonian goddess called Nin-Egal (in Accadian, Bêlat Ekallim) and that the inventories of the temple treasure were drawn up in Babylonian. Thus, to judge from the evidence of the cult, the beliefs, and writings of the Katnians, from their calendar and their system of weights and measures, and finally from the actual plan of the temple of Nin-Egal, one must conclude that the town of Katna was a Babylonian colony ; just as certain towns of Cappadocia were, about the same period, Assyrian colonies.

But, if it is very probable that Katna was indeed originally a Babylonian colony—that is to say, in the 3rd millennium, in the time of Sargon of Agadé and of the kings of Ur—, on the other hand, at the time to which our excavations relate, between the 19th and 15th centuries, if the culture is still wholly Babylonian, the people of Katna now show few, if any, traces of Semitic culture. One sees proof of this, particularly

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in the proper names of men, about fifty in all, of which as many are found in the texts discovered in 1927 as in the two tablets found in 1928, which were actually lists of proper names.

With a few exceptions, the names of the inhabitants of Katna are in no way Babylonian, nor are they Amorite. In a word, they have nothing Semitic about them. They are purely Asianic or Nordic—and more precisely, Mitannian.

The name of Mitanni was then applied to the north of Syria and Upper Mesopotamia. One of the principal towns, possibly the capital, was Harran, a town which certainly possessed, from this time onward, its famous temple of the Moon-goddess. It was still flourishing in the 4th century of our era, when the Emperor Julian made a pilgrimage to it, and offered up a sacrifice to the goddess Luna.

The kingdom of the Mitanni was therefore of great extent, so great that it was often called, on the principle of designating the whole by one of its parts, by the names of its different provinces:—Subartu, Hanigalbat or Nahrima. In all, the Mitanni covered the group of territories which later formed the kingdom of Assyria, using this term in its widest connotation, that is to say, Syria itself and the countries bordering it, Armenia in the north and northern Syria to the west.

The Mitannian power appears to go back to the beginning of the 3rd millennium. In any case, according to the Assyrian tradition itself, the town of Assur, the oldest capital of Assyria, had been founded about the 25th century by two Mitannian kings, Ushpia and Kikia, one of whom was reputed to have built the temple of Assur, and the other, the ramparts of the town. As for the Mitannian language, we know little more of it than is contained in a long letter from the Mitannian king Tushratta to Amenophis III. This document is enough to prove that Mitannian was connected with Hittite, that is to say, with the language of the records of Boghaz-Keui.

Before the excavations of Mishrifé-Katna only a single Katnian name was known, that of Akizzi, who reigned, as I said above, in the time of Amenophis III. Now this name of Akizzi is clearly Mitannian. The first element *Aki* belongs to the root *Ak*, meaning 'offering', and the second element *-izzi* occurs in other Mitannian names such as Pir-izzi. In the tablets coming from Katna itself, the element *Ak* is probably found in Ak-bite, and certainly in Aki-Teshub and in Aki-ia. The ending *ia* is frequent in the vocabulary of Katna. In addition to Aki-ia, one may cite:—Daki-ia, Ebi-ia, Itti-ia, Hashi-ia, Huti-ia, and Si-ia. Several of these names, or names of the same kind,

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appear in the numerous texts, which the excavations of Kirkuk have brought to light. Kirkuk lies to the south-east of Mosul on the Tigris, and is 440 miles in a direct line east of Katna. This connexion is easily explained, since according to M. Contenau 'the region of Kirkuk appears throughout all periods, as a thoroughly Mitannian country'—(*Babyloniaca*, ix, 86).

These names with the ending *ia* are those of merchants or scribes. The names of kings of Katna do not belong to the same type, although we know of the names of Mitannian kings—such for instance, as the founders of Assur, Ushpia and Kikia—which clearly fall within this category. Several of the names of the kings of Katna begin with the syllable *Shal*, which has never yet been met with in the Mitannian vocabulary. Other names end in *lumma* or *limma*, which is undoubtedly the Mitanno-Hittite *liumma*, best known from the name of the great conqueror Shubbilu-liumma.

Names compounded with the names of gods are extremely rare at Katna, and it is remarkable that not one of these contains the name of the goddess Nin-Egal, although she was the patroness of the town. The name of Sin, the great god of Ur—to whom Nin-Egal, at Ur, was subsidiary—appears only once, in the king's name Sin-a-tum. There is another king's name, which occurs right at the beginning of the inventory of the treasure, and which should, therefore, be the name of one of the oldest dynasties of Katna. This name is Epiri-Sharri, which is written phonetically E-pi-ri-Shar-ri, with the Sumerian variant, En-lugal. From this one may conclude, at any rate provisionally, that the kings of Katna still bore Mesopotamian names at a period when the treasure of Nin-Egal first began to be formed, that is to say, in the time of Hammurabi or a little later; and that it was only in the 18th or 17th century that the kingdom of Mitanni extended to the Orontes.

To the facts supplied by proper names should be added Mitannian words which are met with in the documents of Katna, such as *azalwannu* and *shirwanashe*; also certain Mitannian glosses which were found a long time ago in the letters from Akizzi to Amenophis III. These were sufficient of themselves to prove that though Babylonian was the official language of Katna, that spoken by the common people was Mitannian.

Finally, it should be observed that the name Mitanni itself never occurs in the tablets of Katna. The only name of a country met with is that of Tukrish or Dugrish. We know from the documents themselves, that in Tukrish was made embroidered cloth, that is to say

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objects called *zizzatu*, whose exact nature is not known, and also golden eagles. These eagles probably had a symbolical meaning ; perhaps they represented some divinity. Moreover, they seem, in any case, to have been the most characteristic product of the country of Tukrish since their name was Tukrashî, evidently the ethnic adjective of the name Tukrish. Tukrish, this eagle country, was certainly a mountain region ; and since, in a letter of the time of Assurbanipal, we find the mention of a town of Tigrish in Armenia, one may suppose that Tukrish and Tigrish are one and the same name, and that the country of Tukrish should be looked for in the region of the lake of Urmia. In the time of the Median wars this same country was occupied by a people whom Herodotus calls the Matieni, and in whom Théodore Reinach thought he discerned the last descendants of the Mitannians.¹

It seems to follow from these observations that Tukrish was a district of the Mitanni, and that, for reasons which escape us, the whole of the Mitannian region was called at Katna by the single name of Tukrish, just as elsewhere Subartu and Nahrîma were spoken of.

To sum up :—the origin of the city of Katna goes back to the 3rd millennium, to the time when Syria and eastern Asia Minor belonged to the Babylonian Empire. The residence of the Babylonians in these countries must have been of long duration. In any case, they exercised a deep influence, so that all these peoples, so different in character, adopted Babylonian or cuneiform writing, and had to express themselves in Babylonian or translate their thought into their native language.

This state of affairs lasted up to the end of the dynasty dominated by the impressive figure of Hammurabi ; but in the 20th or 19th century important changes took place ; a foreign people, the Cassites, captured Babylon. The kingdom of the Mitanni, already including Armenia and Syria, extended gradually over the whole of Syria, and certain provinces of Palestine. It had not, however, reached the Phœnician coast, and the greater part of Lebanon, which was occupied by the Amorrhœans.

Although the conquest of Syria by the Amosis and the Thutmosis in the 16th century put a stop to the development of Mitannian power, yet this kingdom remained prosperous up to the time of the Amenophis. It was then that the Pharaohs attempted to ally themselves with the Mitannian kings. They exchanged rich presents with them, and several Mitannian princesses became queens of Egypt. Of these, the

¹ Congrès International des Orientalistes, 1894 : *Un peuple oublié, les Matîènes*.

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beautiful and famous Nefirtiti, wife of Amenophis IV, the father-in-law of Tutankhamen, was probably one. It is quite likely that these alliances were primarily concluded as a means of defence against the common foe, the Hittites, but the precautions taken could not prevent Shubbiliuma from invading Syria about the year 1360, and reaching as far as Katna and no doubt a little farther. Katna never recovered from the blow. It was so completely ruined that a few generations later even the site was forgotten, and its name was transferred to some ruins 15 miles away, still called Kattiné.

Long afterwards Katna was to be replaced by the great town of Emesa, lying 11 miles to the south-west, which, under the slightly modified name of Homs, was, and still is today, the capital of Central Syria.

Such appears to us to be the history of Katna. Doubtless it is only an outline . . . But it is certain that future researches will enable us to fill in the detail ; and if discoveries like this continue to be made, it will then be possible to write an entirely new chapter in the history of the people of the East, to be called the Ancient History of Syria.

Prehistoric Macedonia¹

by W. A. HEURTLEY

THE excavations so far made in Macedonia are as follows :—

In the valleys of the Vardar (Axiós) and Gallíko (Echédoros)

Chauchitza	}	by S. Casson, 1921, 1922, and 1924.
Kilindir		
Várdino	}	by the British School at Athens, 1924–1926.
Vardaróftsa		

In the neighbourhood of Salonica

Sédes	}	by the Archaeological Service of the French Army, 1917–1919.
Góna		
Kapoudjilar		

In the valley of the Haliakmon

Bouboústi, by the British School at Athens, 1927.

In the Lankadá valley

Sarátsi, by the British School at Athens, 1929.

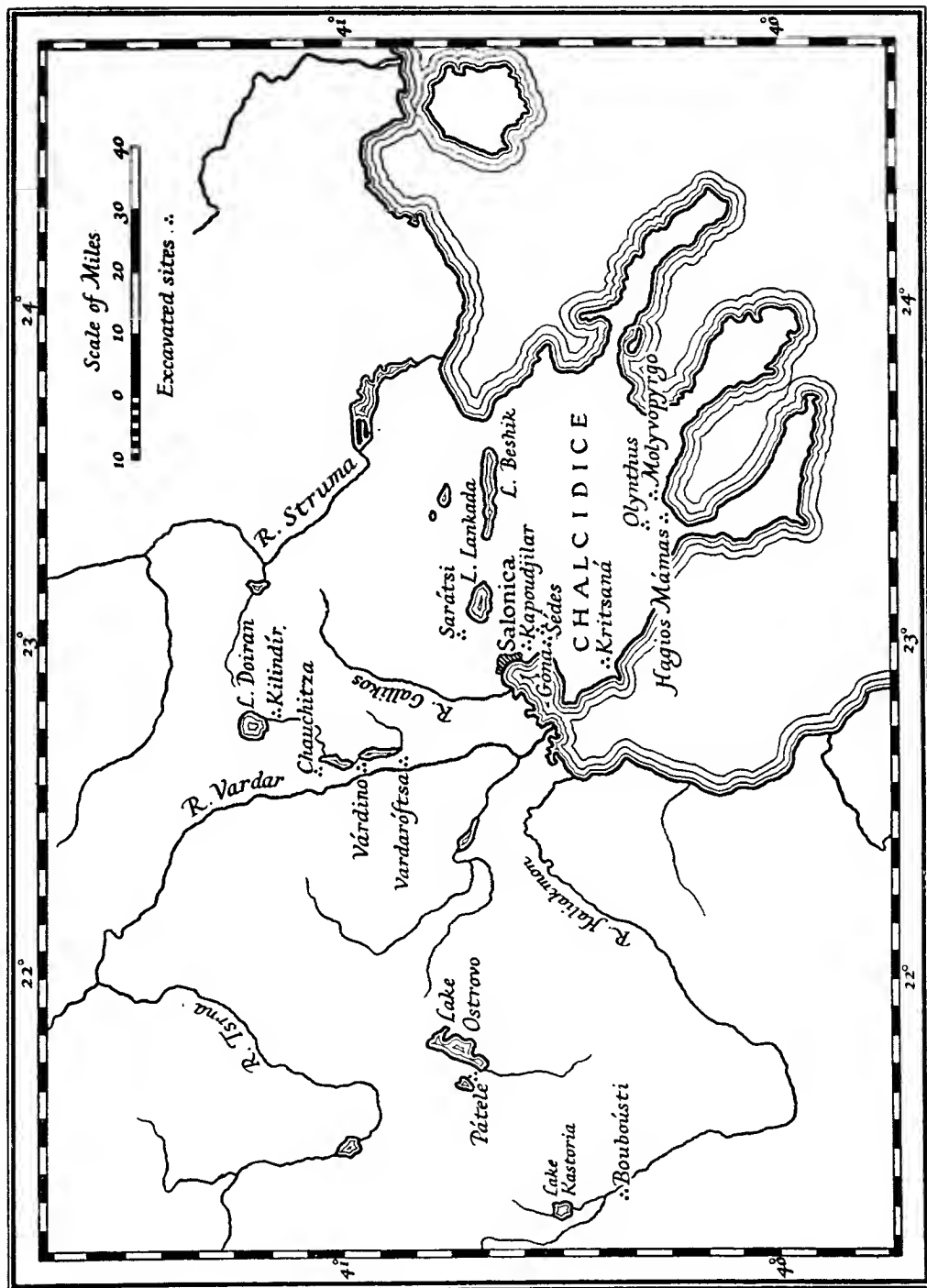
In Chalcidice

Molyvópyrgo	}	by the British School at Athens, 1928.
Hágios Mámas		
Kritsaná,		by the British School at Athens, 1929.

To the above must be added the Early Iron Age cemetery at Pátele excavated by Russian archaeologists before the War ; and a neolithic stratum discovered by the American excavators at Olynthus in 1928.

By central Macedonia is here meant the region between the Struma and the Vardar, and the neighbourhood of Salonica. Of Macedonia, east of the Struma no mention will be made.

¹ A communication made to the Academy of Athens, 21 Feb., 1929.



ANCIENT SITES IN MACEDONIA

ANTIQUITY

NEOLITHIC AGE

The neolithic culture in Macedonia resembles very closely that of the second Thessalian period. *Both* the varieties of the Thessalian B culture, i.e. that of Dimini or eastern Thessaly, and that of central and western Thessaly have been found in Macedonia. Since both seem to be earlier in Macedonia than in Thessaly, it looks as if the movement, if movement there was, was from north to south, and not *vice-versa*. The few sherds of the Thessalian A type² however, which have been found in Macedonia, may point to an earlier movement in the opposite direction.

COPPER AND BRONZE AGE

EARLY MACEDONIAN PERIOD (c. B.C. 3000–2000)

At the beginning of the Bronze Age, central Macedonia and Chalcidice were colonized by people coming, as it seems, from Asia Minor—a parallel stream of the folk that flooded Crete, the Islands, and the mainland Greece about the same time.

The excavations have revealed what it was that attracted them to Macedonia, since, in the lowest stratum at Vardaróftsa, and actually on virgin soil, were found pieces of gold slag.

During this period the trade relations of Macedonia seem to have been, not with the southern Aegaeon, but rather with Troy and probably with the coasts of the Black Sea and south Russia.

This conclusion rests on the fact that only two pieces of obsidian have so far been found in Macedonia, and on the discovery in Chalcidice of stone axes³ and striated bone beads⁴, characteristic of the graves of south Russia. Similar axes have been found in the second city of Troy.⁵

MIDDLE MACEDONIAN PERIOD (c. B.C. 2000–1650)

From the beginning of the second period of the Bronze Age, the history of central Macedonia and the history of Chalcidice diverge, the one from the other. In both places the Anatolian culture was interrupted, but whereas central Macedonia fell under the influence

² e.g. at Sérvia, at the foot of the pass into Thessaly, and at Aivátli in the Lankadá valley; but the latter are not certainly Thessalian A.

³ cp. Tallgren, *La Pontide préscythique*, fig. 48, 5, fig. 68, 1, 5.

⁴ cp. *ibid.* fig. 63, 7.

⁵ cp. especially Schliemann's *Sammlung*, nos. 7182–7195.

PREHISTORIC MACEDONIA

of her northern neighbours, Chalcidice, as other parts of Greece, was overrun by the Minyans. There is some reason for thinking that the Minyans were people of the second city of Troy, and of its neighbourhood, who whether as conquerors or as refugees passed into Greece, where, by reason of their numbers, they were able to overcome the older population and establish themselves in their villages. As coming from the second city of Troy, it is quite possible that the Minyans were Indo-Europeans, and consequently introduced an Aryan speech into Chalcidice and into Greece.⁶

In central Macedonia on the other hand, though there is evidence that Minyan influence reached there, we have to do rather with the incursion of northern tribes, since, simultaneously with the appearance of Minyan ware in Chalcidice, pottery bearing incised ribbon spirals appears in central Macedonia. This type of pottery bears a strong family resemblance to Danubian pottery of an earlier date. It is possible, however, that it developed in Macedonia from the incised style of the previous period, with which it has much in common, and that the resemblance of the Macedonian to Danubian is merely due to the proximity of the two areas. In any case, it is noteworthy that neither in central Macedonia, nor in Chalcidice, did certain pottery forms characteristic of the preceding period entirely disappear, and we may conclude that a remnant of the former population remained on the spot, though their relation with the new-comers cannot be closely defined.

Some had, earlier, passed into Thessaly, where they created the culture of the third Thessalian period. The traces (especially the characteristic 'wish-bone' handle),⁷ of these Macedonian emigrants are found in various parts of northern Greece, e.g. in the Spercheios valley, at Orchomenos, at Thermon, in Lefkás, at Volo, and finally, at a later date, at Bouboústi in the Haliakmon valley.⁸ The conclusion is that they took to a nomad life, and were scattered throughout northern and central Greece, on both sides of Pindus. It is worth noticing that their traces correspond, to a large extent, to the wanderings of the Dorians, as described by Herodotus.⁹

⁶ cp. Childe, *Aryans*, p. 134.

⁷ cp. *B.S.A.* xxviii, p. 186, fig. 32, for the distribution of this handle.

⁸ Perhaps they even got as far as Mycenae. At any rate there is a good example of the 'wish-bone' handle on a matt-painted vase from the first shaft-grave. cp. Furtwängler-Löschcke, *Myk. Thongefässe*, pl. 1, 6.

⁹ Herodotus, I, 56.

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LATE MACEDONIAN PERIOD (*c.* B.C. 1650–1100)

In the third period of the Bronze Age relations between central Macedonia and Chalcidice were resumed, and, in both areas, appears identical pottery decorated with patterns, mainly rectilinear, in matt-paint, recalling, to a great extent, the incised decoration of the first period. It seems that in both areas the older element in the population had revived, or perhaps the fusion between the old and the new had become more complete.

An interesting point is that at Vardaróftsa, at a depth corresponding to the beginning of this period (*i.e.* *c.* B.C. 1600), were found pieces of iron slag, so that we cannot doubt that the knowledge of iron-working was known in Macedonia, before the arrival of Mycenaeans, and it may well have been that this still rare and precious metal was one of the objects that attracted the Mycenaean traders.

At the end of the period (*c.* B.C. 1150) the Vardar valley was overrun by barbarians, coming from the Danube region, probably southern Hungary. In the tombs of Várdino and Vardaróftsa, in burnt strata corresponding to the end of the sub-Mycenaean age, were found characteristic vases of the late Danubian Bronze Age, *e.g.* bowls with fluted rims, and two-handled urns and cups with fluted sides and handles. These invaders do not seem to have stayed long, but their arrival forced some of the native Macedonians to take refuge in Thessaly, thus following the footsteps of their ancestors.

The concentration of these refugee Macedonians in north Thessaly, increased, it seems, by kinsmen from the Haliakmon valley, and later by some of the Danubian invaders, constituted perhaps the last phase of the Dorian wanderings, before the final invasion of the Peloponnese.

THE IRON AGE (*c.* B.C. 1100–)

Early in the Iron Age, the former inhabitants, or their descendants, returned, and rebuilding their homes, continued their traditional half-agricultural, half-mining life, the invaders either having passed on, or having become assimilated with them. Relations with the Aegaeon were not resumed until the arrival of the Greek colonists in Chalcidice. In central Macedonia the stages of Greek penetration are faithfully reflected in the finds of imported Greek sherds at Vardaróftsa, of which the earliest are Corinthian, and the latest Hellenistic.

At the conquest of central Macedonia by Makedones from Pindus, related by Thucydides,¹⁰ there is at present no special archaeological

¹⁰ Thucydides, ii, 99.

PREHISTORIC MACEDONIA

evidence which can be claimed in support, but on the other hand there is nothing to contradict it.

CONCLUSIONS

In the light of the excavations, it is possible, with due reserve, to draw the following general conclusions :

(1) The chronological scheme, which has been accepted for Crete, for the Islands, and for mainland Greece holds good for Macedonia.

(2) The evolution of prehistoric Macedonia is parallel with the evolution of the Aegaeon, with the northern half of which it is closely bound, and, in consequence, Macedonia must be regarded as an integral part, even though at times a detached part, of the Aegaeon world. It did not, however, receive any direct influence from Crete, while *central* Macedonia, on account of its geographical position, was exposed to pressure from its neighbours to the north, by whom it was invaded at least once, and possibly twice. The effect of these invasions was, it seems, neither marked nor permanent.

(3) The archaeological results support the claim that the Macedonians were Greeks, because, if we accept the view that the creation of the Greek race was due to the mingling, about B.C. 2000, of Indo-European (Minyan) invaders with earlier Anatolian settlers, then it is unquestionable that Chalcidice became Greek at the same time and in the same way.

For central Macedonia the case is somewhat different, since, either on account of the conservative character of the older population or on account of the presence of the northern tribes, Minyan influence was less strong there. But, at the beginning of the third period, central Macedonia and Chalcidice were re-united, as we saw, and, as a result of the mingling of the two peoples, it is likely that the inhabitants of central Macedonia became Greek and adopted the Greek language. And it is not impossible that the Mycenaean, whose settlements in Macedonia were, as we know, numerous and important, helped to spread the knowledge of the Greek language.

However that may be, from the archaeological point of view there is no objection to the claim of the ancient Macedonians that they were Greeks, nor to the opinion of many modern scholars that their language was Greek.

The excavations so far completed must be regarded as pointing the way rather than as establishing proved facts. Only excavations on a wider scale will shed full light on the problems here referred to, such as the origin of the Minyans, of the Dorians, and in general of the Greek race. Of all these problems, however, it is possible that Macedonia holds the key.

Assam Megaliths

by J. H. HUTTON

ASSAM is one of the very few remaining areas in which rude megalithic monuments are still erected and, like the most notable of the others—Madagascar—is on the fringe of the diffusion area of Indonesian civilization. Far apart as the two countries are, rough stone monuments are in both associated with a cult of the dead ; both areas have cultural connexions with the Pacific. This paper, however, deals only with Assam, and its purpose is to give a brief account of the megalithic work existing there and thus to throw some light, perhaps, on the purposes and methods which may have been responsible for similar work in the prehistoric past of other countries.

The area in which the erection of monoliths still continues in Assam is now limited to two districts and in one of them already, within living memory, it has almost ceased. Both these districts are hill countries which have escaped the influence of the Hindu and Muhammedan religions which have so changed the culture of the plains, but the same megalithic culture was once more widely spread and has left traces in the plains with which it will be most convenient to deal first.

The ancient Hindu temples of Assam were mostly megalithic in structure and probably imported into a newly acquired Hinduism traditions of a megalithic fertility cult that preceded it. Thus the ancient temple at Kamākhyā which preceded the existing one, built, probably after an earthquake, with fragments of the old, was obviously built of enormous blocks, the stone vase which crowned the dome being in a single piece of stone 12 feet in circumference. Another such temple near Gauhati was the one which had for the centre of its dome a single stone of which the remaining portion is 7 ft. 5 ins. by 7 ft. 9 ins. in diameter and from one to two and a half feet thick, carved with a lotus flower six feet in diameter. Part of the monolithic doorway also survives ; it was 6 ft. 6 ins. square 2 ft. 1 in. deep and 11 ins. broad. Another such temple was that at Numaligarh, and of the same period

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would be the great bridge of unmortared stone called *Sil Hako* in Kamrup, over 140 feet long and with more than 20 passages for water spanned by flat slabs 6 ft. 9 ins. in length and 10 inches thick. This method of building bridges is seen again in those built, probably at a very much later date, by the Synteng princes of the Jaintia hills, bridges in which the spans consisted of single slabs of stone sometimes over 20 feet in length, 8 feet in breadth and 2 feet in thickness. These latter bridges were contemporary with megalithic work in rough stone, consisting of menhirs and dolmens to which reference will be made later. These bridges were compared by ANTIQUITY to the 'Cyclopean bridges' on Dartmoor.

None of this stone-work, of course, predates the Iron Age, and the same statement must apply to the very different type of megalith which is known at two places in Assam and is otherwise unique. These consist of the site at Dimapur, first described by Godwin-Austen in 1874, and the later and less known site at Kasomari-Pathar near Jamuguri. Both sites are at the foot of the Naga Hills, and consist of rows of carved monoliths. The principal group at Dimapur consists of four rows of monoliths, two being of carved pillar stones described as 'chessmen' and the other two of Y-shaped stones carved out of a single piece and covered with ornament. (Plates I-III). The stones are placed so that those in one row fall opposite the spaces in the row in front. The rows are all aligned from north to south parallel to the river Dhansiri to the east. In addition to the main group there are two smaller ones, one of which is decidedly older than the main group and has adjacent to it a single pillar of exceptional size 16 ft. 8 ins. high and 23 ft. in circumference. The other 'chessmen' pillars run from 15 ft. in height and 6 ft. in diameter downwards and the Y stones have arms of 14 ft. or less in length. The designs carved on the stones include naturalistic representations of elephants, barking-deer, peacocks and other birds and animals, and conventional lotus patterns, while the 'chessmen' pillars bear among other patterns an irregular Maltese cross (probably derived from a flying hornbill) and a leaf-shaped weapon very suggestive of the bronze Hallstatt sword. These remains at Dimapur were in the earliest historical times occupied by a Kachari kingdom, but the Mikirs also claim to have erected them and there is some evidence to suggest that the historic Kachari dynasty replaced a pre-existing race. The tradition is that the site was a market place, a tradition which fits well with the still surviving use as such of the great alignments at Nartiang in the Jaintia Hills. The stones themselves

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are undoubtedly phallic, and in the Naga Hills the Angami Nagas of Kohima, which village is connected with Dimapur by a rather obscene legend of its rain-making family, still make wooden objects consisting of a straight post and a forked post, which are definitely stated to represent the generative organs of the two sexes. When a man has attained such prosperity that he can celebrate the *lisü* (wood-dragging) ceremony, a pair of these posts is made and dragged round the village to infect the whole community with the prosperity of the individual. In the ceremony which succeeds the *lisü* in the ascending scale of 'feasts of merit' two great stones are dragged in and set up as monoliths, these also representing the two sexes, though owing to the material they cannot be carved. Occasionally even in the Naga Hills forked stones, usually water-worn, are found and such stones have also been made use of in the past. It should be mentioned that at Dimapur the stone used is sandstone and must have been brought—pulled no doubt as Naga stones are—from the gorge of the Diphu river ten miles away.

It has been said that the Dimapur monoliths are aligned north and south. The largest group is carved on both sides, or all round, and cannot be said to face one way or the other, but part of the oldest group faces west, the Y pillars being carved on one side only. West also faces the Kasomari group, fronting the river Diyung, and perhaps the real association is with water. The Kasomari monoliths are obviously of much later date than those of Dimapur, the connexion being maintained by a single 'chessman' pillar (fig. 1) isolated from the rest, which are either flat slabs or square pillars. The slabs are carved with lotus patterns, naturalistic animals, and a conventional lion of the same family as Manipuri lions carved in the last century. (Plate iv). The square pillars (fig. 2) also bear the lotus and in one case a four-armed man. The pillars are hollow in the top. These hollows are certainly not mortises (though described as such by the Archaeological Survey). Their purpose might be to hold libations, but was possibly rather to contain the skulls or ashes of the dead. This surmise is based on inference from existing customs to be dealt with later on. Made hollows, also sometimes regarded by earlier writers as mortises, are to be found in the tops of the late Y-shaped stones and perhaps in some of the 'chessmen' pillars at Dimapur.¹ The Kasomari monoliths

¹ The mortise and tenon method is actually used in some cases to fasten together the cylindrical stem and the bulbous top of the chessmen pillars, though the majority are made in one piece. But I cannot think that the holes at the tops of the monoliths, where they occur, were ever intended to serve as mortises.

ASSAM MEGALITHS

are surrounded with a moat, and many of them have been incised, subsequently it appears to the erection of the stone, with a bow and arrow, intended, one imagines, to facilitate success in hunting. One stone bears a bow without any arrow. It is curious to note that precisely the same symbol of a bow and arrow is to be seen incised on the menhir called Maen Llwyd, 'the hoar stone', at Cefn Cethin in Llandeilo Fawr in Carmarthenshire.²

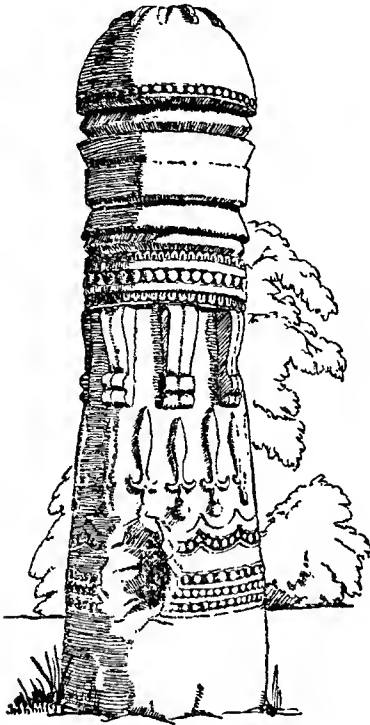


FIG. 1.

'CHESSMAN' PILLAR NEAR JAMUGURI

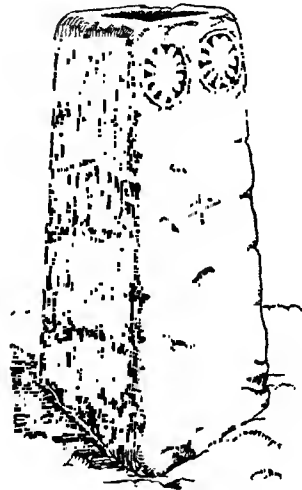


FIG. 2

SQUARE PILLAR AT JAMUGURI

Earlier than either of the Kasomari and Dimapur groups are some groups of stones recently discovered in the North Cachar Hills, a tract of low lying hill country that links the Naga to the Jaintia and Khasi Hills. These stones were discovered by Mr J. P. Mills in 1928 and no account of them has yet been published. They consist of what may be

² For an illustration of this stone see fig. 141 in vol. v of the Royal Commission's *Inventory of the Ancient Monuments in Wales and Monmouthshire: Carmarthenshire*.

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described as male and female stones, which are collected into separate groups. The female stones, of which only two groups have been found, appear to be the older. They are the shape of a truncated cone, with a slightly oval base, are hollow inside and stand erect on their bases. Both groups are much worn and broken and even the larger one contains few perfect stones. The biggest measured was 4 ft. 8 ins. high. The male groups are more numerous and in better condition. The biggest is that at Bolasan, containing about 400 stones, pear-shaped and set up slanting with the 'stalk' end in the ground. The larger ones were about 6 ft. in height and 6 ft. across the flattened top in the centre of which is a hole about 10 inches in diameter and 2 feet or so in depth. Some of the smaller ones which have been entirely covered by the soil show carvings of deer and other animals. What appears from the weathering to be a small group of older stones is differently shaped, being more nearly cylindrical than the very pear-shaped stones that predominate. A small group at Kobak, one stone of which measured 7 feet in length, is similar in shape, and it is to be noticed that one at any rate was carved with 'heads' such as those used to depict the heads of decapitated foes by Nagas. One or two also had animal carvings. Yet a third group of these stones, near Darebora, consists of 42 pear-shaped stones arranged in lines with a single enormous stone at a small distance. The hollows in these are much greater than in the Bolasan group and in the case of the large separate one a man can stand inside and only his face will show above the edge of the aperture. These stones must be of great age as some are almost completely buried with deposited soil. At Bolasan only the small ones are buried, the larger ones standing clear of the soil except for the bases, much, no doubt, as they stood when set up. Probably the Bolasan group is the latest and shows a modification in the pattern of the stone towards a flattening of the top, and general conventionalization. These stones are in all cases associated with pairs of tanks, which are spoken of by the local Kukis (immigrant in historical times) as 'dancing places' and the erection of the stones is ascribed locally to Mikirs. Probably they are to be associated with religious ceremonial similar to that of the Khasi and the Mundas, in which the ashes of the dead are from time to time collected with ceremony at a clan burial place, each family having its own cist. It may be noticed in this connexion that the Wa sub-tribe, of Shella, till recently used to place the bones or ashes of their dead in wooden posts, and at any rate in the Naga Hills many stone forms have corresponding wooden ones. In the same area as that in which these conical

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and pear-shaped stone monuments are found, shouldered celts are of frequent occurrence. These shouldered adzes or hoes are not roughly shouldered like those found in the Naga Hills but are much more finely worked. Some are more highly worked even than the typical Irawady shouldered celt, and instead of being flat with square shoulders are shaped to give the greatest thickness across the middle of the back in a manner very suggestive of the little shouldered iron hoe still made by the Yimtsungr Nagas and called *tafuchi* by Semas.³

All this carved stone-work relates to a past of which we have no longer any record, and the megalithic work that survives is almost entirely in rough stone. Howbeit the skull cists of certain Konyak villages form an exception. Most, if not all, Konyak Nagas dispose of the heads of their dead separately after the body is decomposed enough to admit of detaching the head. This detached head is variously disposed of. By some villages it is placed in natural shelves in the cliffs; others, perhaps for want of convenient cliffs, place them on shelves of built-up stone with a shelter of thatch. Others use pots buried to the rim in the ground, while some place the heads of their chiefs in cairns covered with a flat stone. The skulls of chiefs are in some cases furnished with false noses and eyes. Three villages, however, use receptacles of carved stone. One of them, Kongan, makes a single cist of hollowed sandstone with a flat piece laid over the top. This is perhaps a form which has degenerated from the cists made by the other two. These are phallic in shape, the male ones being carved with patterns which often recall the 'chessman' monoliths of Dimapur, but the female ones, though often divided at the top, are not of the forked Y-pattern, so typical of Dimapur and of wooden ceremonial posts common in the Naga Hills, but much more naturalistic. These carved cists have a cavity in the side in which the skull is placed, and which is covered with a flat stone kept in place by bamboo pegs, the whole being covered with a conical palm-leaf sheath. The cists are kept in family groups in thick jungle near the village and couples desiring children perform ceremonies over cists of the appropriate sex. Obviously then the cist accommodates a soul or soul material as well as a mere skull. Indeed this follows clearly from the fact that while the body is decomposing a wooden figure is provided as a temporary abode for the soul, the same figure being laid aside when the cist is made and used again for any other persons of the same sex. (Plates v-vii).

³ *The Sema Nagas*, p. 66.

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Except for these skull cists, carving is, it has been noted, very rare in the hills. The stone available, whether in the Naga or in the Khasia and Jaintia Hills, is not suited to carving at all. A few roughly incised menhirs do, however, exist, one at Kigwema⁴ in the Naga Hills is roughly cut with patterns that appear to be spear heads but which might have originated in, or might easily develop into, lotus buds such as those at the top of the Kasomari monoliths. Round the edge this stone is indented to form pairs of breasts, a very favourite subject in all Naga woodcarving and one which appears again on the Kasomari stones, but only on the lower parts normally buried, as if the blunter symbolism of the phallic cult had been submerged by Buddhist influence, substituting pairs of open lotus flowers perhaps on the visible part of the stone but none the less retaining the original *motif* where it could not scandalize but would no doubt be equally effective. In Manipur and in the Lushai Hills there are a few incised monoliths, bearing principally representations of animals (suggestive more of Dimapur, this), and Godwin-Austen mentions having seen in the Khasi Hills a monolith carved with the open lotus pattern. Occasionally a Naga menhir is to be found, always an ancient one, which has been deliberately given a phallic shape, and one such is associated with carvings on rock mentioned later on. What is perhaps a substitute for naturalistic carving is, or was, to be seen occasionally in the Khasi Hills in the form of a menhir the top of which was surmounted by a rough ring-stone giving it a sort of knob. This must, I think, have been intended to form a bulbous top, as of the Dimapur 'chessmen', in a granite too hard to be carved like sandstone with inferior iron implements. It is to be noted that Dalton⁵ illustrates, though he makes no textual reference to it, a type of monolith very similar to the Dimapur 'chessman' as occurring in Chota Nagpur, in company with menhirs and dolmens otherwise closely resembling those of the Khasis and Syntengs. In the North Cachar Hills monoliths on long-deserted sites probably once occupied by Syntengs are occasionally carved with a rough figure of a man and occasionally with a representation of the female genitalia, and the general significance of all this Assam megalithic culture, past and present, is unequivocal. It is to provide a suitable vehicle through which the soul-force of persons living or dead, but particularly the latter, may assist or perhaps constitute the reproductive forces of nature and provide crops and other forms of

⁴ *Man*, 1926, 44.

⁵ *Rude Stone Monuments in Chutia Nagpur*, J.A.S.B., 1873, pt. I, no. 2, plate II.

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life for the fellow villagers who survive them. This theory of the cycle of life is stated most circumstantially by the Karens of Burma whom the Angami Nagas claim as near cousins and who according to Smeaton⁶ likewise claim relationship with the Angamis. They speak of the soul as an entity which pupates as it were on death, the pupa falling to the ground, bursting, entering the growing grain and causing it to burgeon and again entering the bodies of men or animals which eat the grain, passing on to descendants through the seminal fluid.⁷ Similarly the Wa of Burma take heads to fertilize the growing crop (with the soul from the head) and the Naga takes heads whenever excess of disease, famine or misfortune indicates a shortage of soul-force in the community. So again the Nagas of Laruri in the Naga Hills are careful to preserve their dead throughout the year, that the partially smoke-dried corpses may be broken up and the soul released for fertilization purposes on the first day of the sowing. Till then the soul is conceived of as roaming in the neighbourhood of the village, and offerings are made to it and a miniature house and utensils provided, but these are no longer required after the sowing ceremony and the disposal of the bones in a pot in the family granary, though a final offering of first fruits is made after the harvest. Another link in the chain is provided by the practice of Ukha and certain other villages of independent Konyak Nagas in making soul-figures of the dead, on which the skull is placed for a time in order that the soul may descend into the figure. The same idea of the wooden figure of the dead as a temporary abode for the soul has already been noticed in connexion with the Wakching cists and certainly is found in the Angami practice of putting up wooden statues for the dead on their cenotaphs, which in some cases have a small erect stone behind to take the place of the statue when it has rotted away. In other villages these are removed and burnt between the harvest and the sowing, while it is said that they ought not to be kept after the first year, *i.e.* after the first harvest, but if they should be left up till the following sowing they must be retained throughout that year too, till the crop has again been harvested. Many villages, however, do not use these wooden statues but erect monoliths for the dead, sometimes actually in the rice fields, also placing a small water-worn erect stone at the top of the grave, which is definitely said to be the dead man and on which drink is poured

⁶ *The Loyal Karens of Burma*, p. 68. The Angamis likewise talk of the part of their tribe called Kerennoma, *i.e.* children of the Keren, left behind them to the eastward on their way to Assam.

⁷ Marshall, *Karen People of Burma*, pp. 222, 230.

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for the soul. These villages do not erect stones for the soul-force of the living, but those who use wooden statues for the dead put up pairs of stones representing the male and the female as has been already stated.

The Nzemi (Kachha Naga), like the Khasi, use a menhir to represent the male and a recumbent slab to represent the female, but they do not, as the Khasi do, use dolmen cists for the bones of the dead. There are large groups of menhirs, probably representing clan burial-places, in the Khasi Hills, and one such, of enormous stones, occurs at Gwilong (fig. 3) or Togwema in the Nzemi country. This group has, erroneously as I consider, been described as a 'circle', and the plan included in Col. Hodson's book on *The Naga Tribes of Manipur*, but not made by the author himself, is misleading. It consists of a large number of menhirs, some of great size, aligned along the path of approach and becoming a confused group of stones at all angles, many of them now thrown down, and containing an irregular open space where the young men wrestle in honour of the dead on certain occasions. Water is conducted by a special channel into a normally dry excavation alongside the stones, in which the young men disport themselves. This association between monoliths and water has in the past been very frequent, but is rapidly disappearing, as menhirs are now erected without any regard for the presence of water. Old ones of note, however, are associated with artificial excavations which hold or were intended to hold water, while another symptom of obviously the same fertility cult is to be seen in the Rengma Naga practice of digging a receptacle for water on graves in order that the crops of the deceased's heirs may be fertile, and in the practice of certain Angami clans who make rain by pouring water on the grave of the last member of the clan to die.

Menhirs are also associated with the vital essence of enemies as well as of deceased clansmen. The association of head-hunting with the crop by the Wa of Burma has been mentioned, but the Konyak Nagas of certain villages, when they take a head, hoist it on a bamboo attached to a menhir in order to benefit the crop (the hoisting is doubtless to make the rice grow high). In other villages (*e.g.* Yungya) the head is exposed on a flat stone at the foot of a palpably phallic menhir, or on a stone table (as at Chi) before a mound on which a small stone is erected for every head brought in, an *euphorbia*, whose milk-like juice seems also to have fertility associations like that of the *ficus*,⁸ being grown on the

⁸ Frazer, *Golden Bough*, II, 313, 316, 317; VIII, 113; *Folk Lore in the Old Testament*, III, 316.

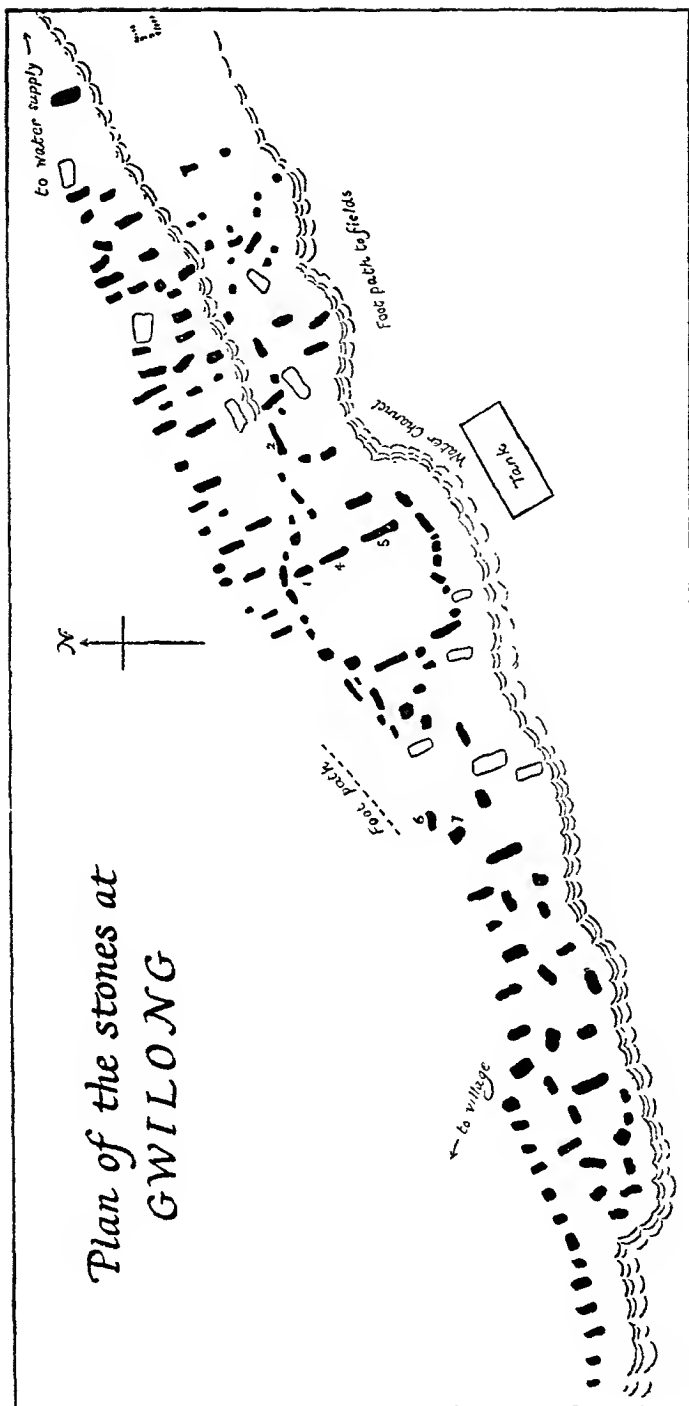


FIG. 3

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top of the mound. The Tangkhuls expose the heads of their enemies on a pile of stones, and the Angamis place them on the sacred stone of the village, while the Lhotas hang them on the sacred tree of the village, a *figus*, among the roots of which are kept the round water-worn *oha* stones which are the repositories of the 'luck', the *mana* of the community and which have in many cases accompanied the community in its wanderings in the remote past.⁹

Apropos of the discovery of 'Woodhenge' it is worth noting that all these monolithic erections have their wooden counterpart. The forked stones of Dimapur are paralleled by the forked wooden posts of the Sema and other Naga tribes (plate VIII), as the 'chessmen' pillars and as menhirs generally are by wooden phallic pillars, as of the Ao Nagas; while the Angami Nagas use a pair of wooden emblems corresponding to the stones of Dimapur. Even a wooden menhir has been known to occur, though no doubt this was a degenerate, since the stone menhir must have started as a post and not a slab. Perhaps the wooden coffin may be taken to correspond to the stone cist, and certainly the pots used for the disposal of Konyak heads in many villages are to be correlated with the stone skull cists, and in some villages, *e.g.*, Shiong, an inverted pot is inserted in the mouth of the pot that contains the skull, the latter being half buried and the pot forming a sort of dome over the skull inside.

Stone work is not confined to menhirs and dolmens of course. Circles are constructed in honour of the distinguished dead. Those in the Sema tribe consist of flat stones erected to enclose a space of some yards in diameter, sometimes with a solitary menhir outside the circle (plate IX). The Nzemi on the other hand use square blocks and build a circle or rectangle about a foot-path, leaving gaps for the entrance and exit of passers-by—this also in honour of the distinguished dead. The Angami make solid cenotaphs and graves of stone-walling filled in with earth, circular or rectangular according to whether the deceased has or has not performed feats of merit. The circular constructions resemble very closely the circular stone tumuli of southern India,¹⁰ of northern Africa¹¹ and of Etruscan graves. The Lhotas bury their dead in vaults in their sandstone village sites, covering the low entrance which runs the length of the vault with fitted sandstone

⁹ Mills, *The Lhota Nagas*, 166 sqq.

¹⁰ Fergusson, *Rude Stone Monuments*, p. 472.

¹¹ *Ibid.* 398.

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slabs. Some of the Nzemi build loose stone pyramidal cairns in honour of their dead, usually associating them with water, and I have seen a similar pyramidal structure built by a Synteng in the Jaintia Hills in front of his house. Great forts of stone, terraced and pyramidal, are built by the Angami as clan strong-holds, usually over the spot where the ancestors of the clan and founders of the village are buried. They are used as strongholds in inter-clan riots and three of the finest in existence were constructed as late as 1923. These *Dahu* and similar constructions are built by the method alleged to have been used by the Picts (*vide* MacRitchie, *Testimony of Tradition*, pp. 66 sq.) of forming long lines to a quarry, or river bed, along which stone after stone is passed from hand to hand. Circular stone platforms with stone blocks round the edge as seats are made for clan ceremonies.

Alignments of menhirs are frequent and it is to be noted that they are nearly always along a path. In the case of some Synteng erections, as perhaps at Dimapur, the alignment is associated with a market, but generally they line the paths which approach a village or some other frequented place. (Plate x). The association again appears to be with the souls of the dead, since all the cult of the dead is associated with the paths to the village by which the soul leaves, and no doubt returns to, its earthly habitation. Offerings for the dead are placed along paths, sometimes in the direction from which the village originally came, and in the Ao tribe the dead themselves are exposed along the paths though there seems to be no such origin association in their case. Rock carvings are rare—almost absent, but one very naturalistically carved or touched-up menhir in the Lyengmai village of Intuma is associated with carvings representing the deceased, his wives, children and mistresses, the heads he took and the animals he slew, the rainbow by which probably his soul was to ascend to heaven (or possibly to associate it with the fertilizing rain), and a very conspicuous spiral pattern tentatively stated to represent perhaps a great snake, but most uncommonly suggestive of certain patterns associated with megalithic work in Europe.

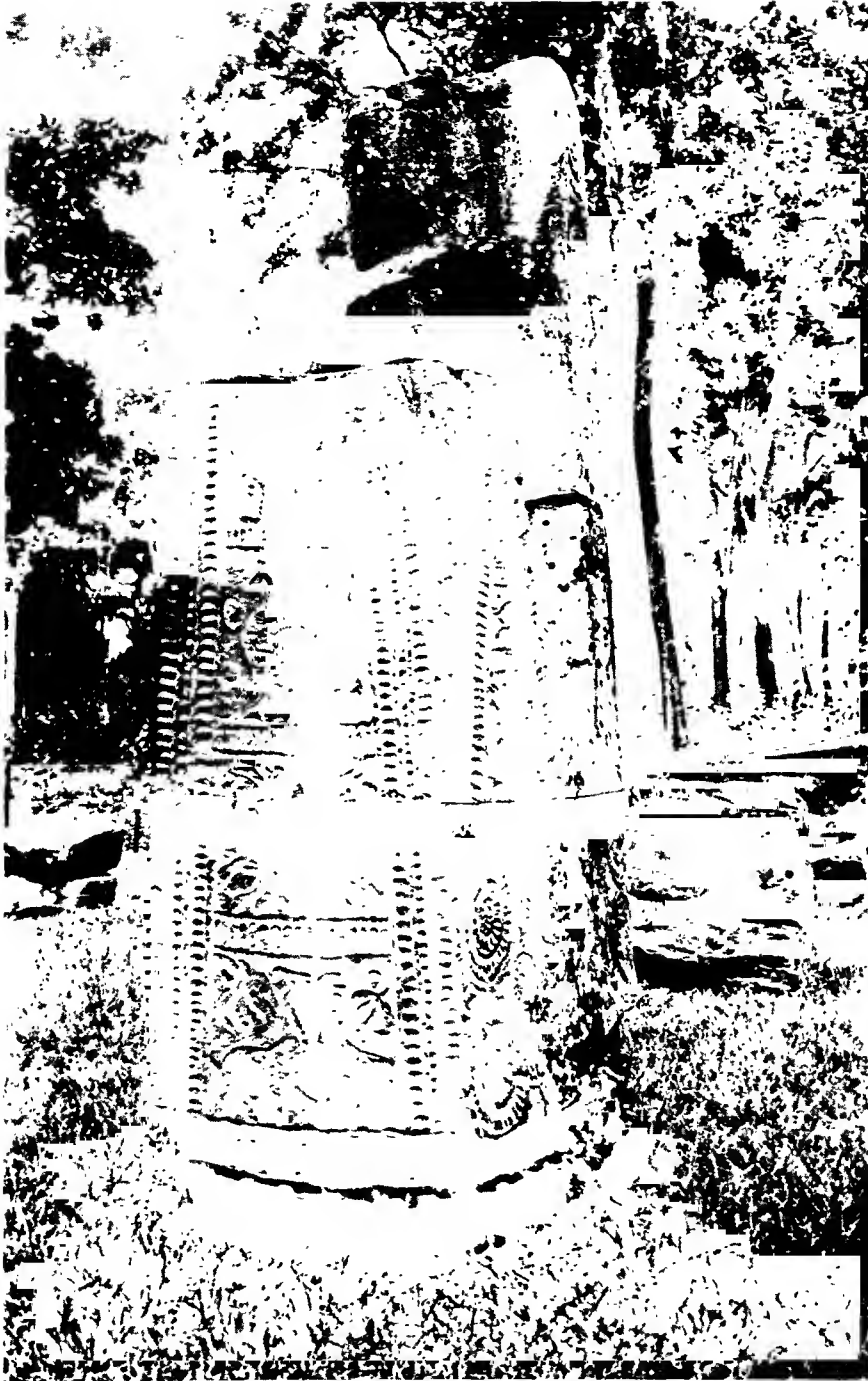
Some of the menhirs erected in Assam are of very great size. The Dimapur monoliths were estimated to weigh about 20 tons each, and one at any rate must be a good deal more. Many Naga monoliths must weigh as much, and even bigger are some of the Synteng stones, one of which, at Nartiang, measures 23 feet in height above ground, while Col. Gurdon mentions a Khasi table stone at Laitlyngkot measuring 28 ft. by 13½ ft. by 1 ft. 8 ins. These are not as big as many of those in Europe,

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but they will certainly compare with them to the extent that the methods by which the Assam megaliths are transported and erected would serve equally well for those of Carnac, and to say that how such monuments were put up is a mystery, as has been recently asserted,¹² is inconsistent with our knowledge. The monolith to be erected by Nagas is quarried so that when completely detached from the rock it lies horizontally upon one edge. Usually it is a natural slab or boulder lying near, or on, the surface of the ground, but occasionally it is cut from the rock where the strata are such that detachment is easy. This facilitates the tipping of the monolith on to the wooden sledge on which it is to be dragged to the site of erection. This sledge is made either v-shaped, from a fork of a tree, or in two pieces, the sides, which serve as runners, being joined in both cases with cross pieces of stout wood (plate XI). The sledge is laid as close as possible alongside the stone with its nose adjacent to the lighter end of the stone, and it is held in place by men pushing against it with poles while the stone is gently prized up and tilted on to it with wooden levers. Once on the sledge the position of the stone is shifted by means of wooden levers till its weight is distributed as evenly as possible, and it is then lashed very tightly to the sledge with ropes of creepers (plate XII). Similar ropes are used for pulling the sledge and stone to the desired site and enough ropes are provided to enable large numbers of men to pull (as many as 100 pullers may work on one rope), and they have spare men to relieve them or assist when there is a special strain (plate XIII). At the desired site a small hole is dug and the sledge arranged so that the heavier end of the stone is adjacent to the hole. To this end of the stone long poles made from saplings are applied by parties pushing with all their weight to prevent the stone's slipping prematurely into the hole. This pressure is maintained during the raising of the stone from the horizontal to the vertical, which is effected by introducing under the top end, away from the hole, wedges of wood of very gradually increasing length. To introduce the wedges wooden levers are used which raise the end of the stone very slightly and admit of sections of tree being inserted, fresh sections being slightly longer than the previous ones, which are pushed down nearer to the base of the stone to make room for them. When the end of the stone has been lifted well up from the ground in this way, it is harnessed with a noose to creeper-ropes which are pulled on from beyond the base of the stone, the men near its foot

¹² ANTIQUITY, September 1928, p. 348 sq.

PLATE I



MONOLITH OF MAIN GROUP, DIMAPUR

PLATE II



MONOLITHS OF MAIN GROUP, DIMAPUR

PLATE III



MAIN GROUP OF MONOLITHS AT DIMAPUR

PLATE IV



MINHIR, JAMUGURI

PLATE V



BURIAL PLACE OF KONYAK CHIEF'S SKULL. OTHER POTS CONTAIN OFFERINGS, AND THE WOODEN SEAT IS FOR THE SOUL TO SLEEP UPON.

PLATE VI



SKULLS OF CHIEFS OF WARCHING (KONYAK NAGA)

PLATE VII



SKULL-BOX AND CONICAL THATCHED SKULL-COVER

PLATE VIII



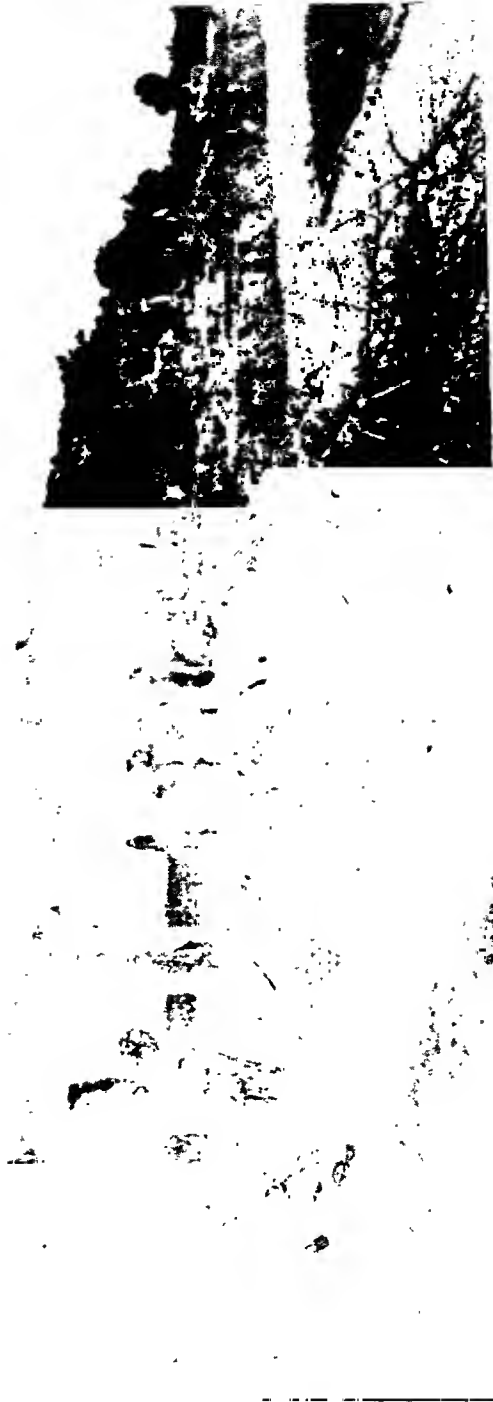
FORKED WOODEN POSTS, SEMA NAGAS

PLATE IX



SIWA STONE MEMORIAL CIRCLE, WITH MINOR OFFSIDE

PLATE X



MEN STANDING ALONG PATH THROUGH RICE FIELDS, KAZAMA VILLAGE

PLATE XI



WOODEN SLEDGE FOR TRANSPORTING MONOLITH

PLATE XII



MONOLITH ROPED TO SLEDGE AND READY FOR PULLING.

PLATE XIII



PULLING THE SLEDGE AND STONE

PLATE XIV



MONUMENT FASTENED TO A TRAIL FOR TRANSPORT BY THOJA NAGAS

PLATE XV



MEANDER AND DOLMEN AT KIZAKI NOMA

PLATE XVI



THE CHIEF OF MÓN BESIDE MINH HƯNG. PARASITIC GROWTHS (GENERALLY ORCHIDS) ARE ENCOURAGED TO GROW ON THE TOPS OF THESE STONES.

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helping those who are pushing poles against it by placing a foot on the base of the stone. When the stone reaches an angle of about 45° it is allowed to slip off the end of the sledge into the hole, and the party pulling on the noose raise the top end to any upright position, others pushing with their hands from behind. As the stone touches the vertical all rush in in a 'scrum' from all sides, those nearest the stone steadying it at the top with their hands and those behind supporting by their weight those who are pushing directly on the stone. While it is held in this position by the weight of the press round it the bottom is wedged underneath to make it stand steady on its own base, after which the hole is packed and the rammed end eventually paved with flat stones at the top.

In the Lhota tribe another method of transporting smaller monoliths is used, particularly where the ground is broken and rough. A huge rectangular framework of poles crossing at right angles is made, as rigid as possible, and the stone is lashed to the centre of it (plate xiv). The men raise the framework and carry the stone to the site, each man being in the centre of a square made by the crossing poles of the frame except the outer lines where squares are open on one side.¹³ It is easy for sixty men or so to combine in carrying a stone in this way, though of course the method does not admit of the transport of nearly such large stones as can be moved by a sledge with ropes.

Although an eastward aspect for the erected stone is often favoured, it is not universal, and there appears to be nothing to connect these megaliths with sun-worship. The absence of sun-worship here naturally suggests speculation as to whether complete confidence can be placed in the commonly accepted supposition that the megaliths of Great Britain and of Brittany were connected with a sun-cult. The *allées couvertes* and alignments of Carnac do not face east, but north-east, south-east or north, and their orientation might refer to the direction from which migration took place, or, in the case of alignments, might be determined by pre-existing paths, as are some alignments of the Naga Hills. The occurrence of solstitial stones is not necessarily destructive of this view, since if the dead were associated with the crop and the reproductive powers of nature generally it would not be unnatural to find in their monuments a means of determining the seasons on which the agricultural year depended. The Cherama clan of Kohima village in the Naga Hills determine the calendar of their agricultural year by

¹³ *The Angami Nagas*, p. 362.

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careful observation of the sun's rising along a distant range of jagged peaks which enables them to note the solstices. A group of menhirs commemorating the dead might have been made to serve the same purpose, and when the solstitial spot became known it would no doubt be marked. There is other evidence to suggest that at any rate Carnac was associated with a fertility cult. The wheat design under the *Table des Marchands* associates it with the crop and the ornamentation of the stones in the gallery of Gavv' Inis has been interpreted as a conventionalization of the same theme. Reinach has shown that head-hunting was practised in ancient Gaul, and, as pointed out by Gomme,¹⁴ it seems to have survived in Great Britain to the Middle Ages, while the pre-Christian fertility cult practised by the witches survived to a much later date. Traces of phallic worship go back to the Old Stone Age, and it is perhaps not unreasonable to deduce from the mortuary, phallic and fertility associations of the menhirs and dolmens of Assam, that the not dissimilar monuments of Europe had similar associations to which the sun was purely incidental.

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[*J.A.S.B.* = Journal of the Asiatic Society of Bengal; *M.A.S.B.* = Memoirs of the same. *J.A.I.* and *J.R.A.I.* = Journal of the Royal Anthropological Institute. Most of the articles in the above list are illustrated].

¹⁴ *Ethnology in Folklore*, 144 sqq., 158.

Notes and News

THE BERLIN CONGRESS

Mr R. G. COLLINGWOOD sends the following note :—

On the ancient feast of the Palilia, the date on which Rome, according to tradition, was founded, the *Istituto di Corrispondenza Archeologica* was inaugurated by a group of Italians and Germans in the year 1829. From the first a predominantly German institution, it became by degrees more and more exclusively so, until, in the year 1886, it took its present form as the Archaeological Institute of the German Empire. This body celebrated its centenary on 21 April of the present year. On the morning of that day, delegates from German and foreign learned societies were received, and presented addresses of congratulation; in the evening, a meeting was held in the Reichstag building, at which speeches were made by representatives of foreign Governments. On the following day a reception was held in the new Pergamon Museum, where the Pergamene sculptures have been reconstructed and can be seen under conditions that almost deserve to be called ideal. In the afternoon began a series of meetings at which, for the next four days, archaeologists of almost all countries lectured on the work recently done by themselves and their compatriots. There were altogether about 75 of these lectures, divided into four sections—Rome, Greece, prehistoric Europe, and Asia and Africa. In the evenings there were meetings of a more general kind. On 22 April the entire company, a thousand strong, were entertained at dinner in the Marble Hall of the Zoological Gardens. Speeches were made, but whether owing to the shape of the hall or to the difficulty of securing silence in so large and various a gathering, they were not heard. This, however, did not damp the spirits of the diners. The next evening, the guests of the Institute were invited to attend a meeting of the recently-founded *Gesellschaft für Antike Kultur*, at which its president, Professor Werner Jaeger, gave an address on the place of ancient studies in the life of the modern world. Professor Jaeger is the most brilliant and distinguished of the younger generation of German scholars, and his speech was a thing which will not be forgotten by those who heard it: at once a

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reasoned exposition of the meaning and purpose of historical studies, an analysis of spiritual conditions in the post-war world, and an impassioned plea for the building-up of a new world on the ruins of the old, in the light of the past and its lessons. If any member of the congress wondered, in an idle moment, why an entire civilization had been bitten with this morbid craving to scratch the earth and collect the bones of its predecessors, and why the disease had gone the length of herding its victims together, a thousand at a time, at great trouble and expense, for the mutual discussion of their symptoms, Professor Jaeger's address gave the answer to his doubts.

PRIMITIVE CARTS

By a happy chance we are able to publish together two photographs of primitive solid-wheeled carts, one from Sardinia and the other from Spain, where they are still in use today. They are the result of holiday snapshots taken by two of our readers to whom we are indebted for permission to use them. (Plates I-II).

Interest in the subject was revived by Mr Woolley's discovery at Ur of a limestone bas-relief showing just such a wheeled cart.* This is the oldest known instance of the use of wheeled vehicles, unless the chariots themselves, found later in the Royal Tombs at Ur and also at Kish, are earlier. These chariots also had solid wheels. Though solid, that is to say spokeless, the wheels were not made in one piece. The component parts were clamped together, a method also adopted in our Sardinian example, where we presume the clamps are of iron. In the Spanish example the wheel consists of four parts, and the same mechanical principles are used as at Ur. An economy of weight is effected by boring two large holes.

Essentially, carts of this kind are little more than logs or planks on moving rollers; the prototype of the wheel was obviously the tree-trunk. Describing the Spanish example Mr W. J. Hemp, F.S.A., says :—' It consists of a tapering platform of which the smaller end forms the pole (whose end can be seen projecting between the heads of the ox and cow). The carts go up and down the steep paved streets of Oporto, emitting groans which are a characteristic of the country. In some places a brake is applied by straining a pole against a round projecting iron hub (absent in the illustration). The carts are in

See *ANTIQUARIES JOURNAL*, VIII, plate 5, and *ANTIQUITY*, II, plate opposite p. 56.

PLATE I



SOLID WHEELED FLOCK CART, MACOMIR, SARDINIA
Ph. C. Safford

PLATE II



SOLID WHITE OX CART, NUESTRA SEÑORA DEL PUENTE, NEAR LA PLIEGA, PROVINCE OF ZAMORA, SPAIN
Ph. W. J. Hemp, 1929

NOTES AND NEWS

general use throughout the north-west corner of the peninsula. I saw them in Oporto, Braganza, Astorga, Vigo and Santiago '.

As usual on any Spanish subject, Richard Ford's words are worth quoting ; in his *Gatherings from Spain* he observes of ' the carts and other machines of Spanish rural locomotion and husbandry ' that ' when not Oriental they are Roman ; rude in form and material, they are always odd, picturesque, and inconvenient. The peasant, for the most part, scratches the earth with a plough modelled after that invented by Triptolemus, beats out his corn as described by Homer, and carries his harvest home in strict obedience to the rules in the Georgics '.

' The carts in the north-west provinces are the unchanged *plaustra*, with solid wheels, the Roman *tympana* which consist of mere circles of wood, without spokes or axles, much like mill-stones or Parmesan cheeses, and precisely such as the old Egyptians used, as is seen in hieroglyphics, and no doubt much resembling those sent by Joseph for his father, which are still used by the Affghans and other unadvanced coachmakers. The whole wheel turns round together with a piteous creaking ; the drivers, whose leathern ears are as blunt as their edgeless teeth, delight in this excruciating *Chirrio*, Arabicè *charrar*, to make a *noise*, which they call music and delight in, because it is cheap and plays to them of itself ; they, moreover, think it frightens wolves, bears, and the devil himself, as Don Quixote says, which it well may, for the wheel of Ixion, although damned in hell, never whined more piteously. The doleful sounds, however, serve like our waggoners' lively bells, as warnings to other drivers, who, in narrow paths and gorges of rocks, where two carriages cannot pass, have this notice given them, and draw aside until the coast is clear '.

In sending us the Sardinian photograph, Mr C. Suffern suggests that man-hauled carts like this may well have been responsible for the Maltese cart-ruts. Mr Suffern has observed similar ruts in Sardinia. This would explain why there is no worn central track, such as must in time have been produced by the hoofs of draught animals.

He also draws attention to a bronze statuette illustrated by Perrot and Chipiez (*Histoire de l'Art, Sardinia*, fig. 57), who attribute it to the *nuraghi* period. It represents a soldier carrying a long pole or chariot-shaft, with a pair of wheels at the upper end ; whilst about the middle a basket is kept in place by a hook. There is certainly a striking resemblance to the cart figured, with its basket-like body of plaited straw. (The photograph was taken in the Macomer district in 1924).

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These two primitive survivals from so near home are of great interest, and we wish to thank the owners of the photographs for allowing us to publish them and to use their notes in compiling the above description.

DESERT MARKINGS NEAR UR

Amongst the negatives of a large mosaic of the district round Ur, is one showing curious parallel marks. We reproduce this (plate III) with the object rather of eliciting information than of giving it. The exact position may be seen on the mosaic itself, which is now with the Ur finds on exhibition at the British Museum.

The marks may well be old irrigation channels ; but if so they seem to have a different appearance from those in use in Iraq in medieval and modern times.

THE ROUND TOWERS OF MOAB

While staying recently at Amman, the capital of Transjordan, we were taken by our host, Group Captain Rees, V.C., to see some megalithic remains on the plateau lying to the south-west of the town. They consist of two dolmens, two round towers and innumerable walls or banks of stone. On seeing the round towers we were at once struck by their very close resemblance to the talayots of Majorca. At the time we had forgotten Dr Duncan Mackenzie's account* of the Transjordanian remains, which we had not looked at for many years ; and on re-reading it we were interested to find that the same resemblance had also struck the earlier observer. The similarity, however, is so remarkable that no one who has seen both can fail to notice it.

The dolmens differ in no essential points from others in the huge region where they occur—a region which extends from Ireland to India and from Sweden to North Africa. The one visible in the photograph (in the bottom left-hand corner of plate IV) occurs close to the ruins of a round tower of megalithic construction (Dr Mackenzie's plate II) and was doubtless, as he suggests, the tomb of some chief who lived there ; or possibly a communal burial-place of the inhabitants. The close association of dolmen and tower is well brought out in the photograph, taken obliquely from the air ; and this association is a feature of the

* *Megalithic monuments of Rabboth Ammon at Amman*, by Duncan Mackenzie, PH.D. Palestine Exploration Fund Annual, 1911, pp. 1-40, plates I-VI.

PLATE III



ATR PHOTOGRAPH, REVEALING MARKS ON THE DESERT NEAR UQ, IRAQ
By permission of the Trustees of the British Museum

nuraghi of Sardinia. The *nuraghi*, too, are megalithic towers, though their special structural features have not yet been proved to occur in the towers of Transjordan.

Attached to the Transjordan towers are the ruins of rectangular rooms. These are not visible on the photograph, but were carefully planned by the late Mr F. G. Newton, Dr Mackenzie's companion on the occasion of their visit to Amman. The whole complex of structures was primarily defensive, and in general character (though not of course in details) may be compared with our Norman castles, with their keep and bailey. Dr Mackenzie further observed a strategic arrangement with relation to the perennial streams at Amman, the City of Waters, the Rabboth Ammon of the Bible. The towers are only a short distance from the town itself, which may be seen in the distance on plate v. The view gives also a good general idea of the rolling uplands of Moab ; and it shows how much cultivation there is in this, at first sight, barren region. The whole area is seen, moreover, to be divided up by huge banks of stone bounding the fields. These are essentially the same as some of the prehistoric field-boundaries in the stonier parts of England and Wales ; † they represent partly the ruined field-walls, partly the stones and boulders removed, as obstructions to the plough, from the field itself. Of what age they are, who can say ? The area is still cultivated, but, though doubtless there have been many changes, they may go back to the remote ' megalithic ' times, before the Canaanites, and long before the Children of Israel.

In these towers and dolmens, with their far-flung resemblances, we have yet another suggestion of a remote cultural community extending over large regions of the ancient world. A direct connexion between, say, Majorca and Moab is of course very unlikely ; but some ancestral community of culture there must surely be. If this be ruled out as too bold an hypothesis, what explanation can we give of another striking resemblance—that between the rock-cut tombs of the Mediterranean region ? ‡ Like causes produce like effects, and the resemblances may, of course, be accidental. They are none the less striking. One would like to know more of the habitations of dolmen-builders in other regions. We hope we may be able to publish something about this later.

† Compare Dr Raistrick's article in the last number of *ANTIQUITY*.

‡ See *ANTIQUITY*, II, 214, 215 and III, 222.

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UNKNOWN LINCOLNSHIRE

Prehistoric and Roman Lincolnshire are both awaiting discovery. No county has been more neglected and few are so promising. Though now mainly under plough, there are yet visible remains of the first importance which have never been investigated ; some have not been described since Abraham de la Pryme whose 17th century diary contains so much useful information (published by the Surtees Society, vol. 54, 1870). Stukeley was, we believe, the last, as well as the first, to set down an adequate account of the Roman walls of Caistor-on-the-Wolds, a fragment of which still survives. Mr C. W. Phillips, who visited Caistor recently at our suggestion, thus describes them :—‘ The remains are on the south side of the churchyard, and they consist of the relics of a piece of curtain wall, and of a bastion. The line of the wall is occupied at this point by a row of cottages, and the bastion, which is not on a corner, is at present built into some outhouses at the western end of this range of houses. It still stands some nine or ten feet above the present surface, is solid, and is practically semicircular in plan. It is built very roughly of large pieces of the local stone, and I saw no vestige of tile or brick. West of the bastion for some thirty yards there are the much overgrown and totally ruined vestiges of the curtain wall. The south boundary of the churchyard is the terrace formed by the wreckage of this wall. The bastion has been a good deal damaged round its base, but seems in no real danger because much of it is shielded by the hovel built round it’.

Mr Phillips also describes a long barrow, at Burgh Top. It stands beside the old road called High Street, the main artery of the Wolds from time immemorial. Some years ago we noted three obvious long barrows on the 6-inch Ordnance map (near Claxby, Alford) ; but this one at Burgh Top is the first to be actually discovered on the ground.

Lincolnshire is now being partially revised for the Ordnance Survey large-scale maps ; so that it is a good opportunity for residents to notify us of any ancient sites that are omitted. There must be a very large number.

AN IMPORTANT BONE IMPLEMENT FROM CHEDDAR

Dr R. C. C. CLAY sends us the following communication :—

One of the most important archaeological finds in recent years is the discovery of a second example of the so-called ‘ bâtons-de-commandement ’ in Gough’s cave, Cheddar. The two specimens are the only

PLATE IV



DOLMİN

ROUND TOWER AND DOLMİN NEAR AMMAN, TRANSJORDAN

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PLATE V



ROUND TOWER NEAR AMMAN (VISIBLE IN DISTANCE), TRANSJORDAN
(Mackenzie, plate 1)

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known examples from the British Isles. The first specimen, found in 1903, has been described in the *Journ. Roy. Anthropol. Inst.* XLIV, 245. The second specimen, here illustrated, was found by Mr R. F. Parry in 1927 in his excavations at the mouth of the cave. It was resting on gravel in the sand, close to the north wall: that is to say, in the deepest implementiferous stratum; and was associated with several flint implements of undoubted Magdalenian facies. The fact that it was found in two fragments, one large, the other small, far apart, testifies to the extreme carefulness that Mr Parry exercised in his work. (Plate VI).

The specimen is made from an antler of reindeer, one face being slightly rounded, the other almost flat. The rounded face is decorated with six bands of linear incisions, while the flat is plain except for a single similar band in the middle. The perforation is oval, inclined at an angle to the shaft, and bears on its lower lip on the flat side and on its upper lip on the rounded side well marked grooves which have evidently been cut with a flint implement.

The specimen previously found is more fragmentary. It is decorated with a band of incised lines that wind spirally round the shaft. Miss Garrod, in *The Upper Palaeolithic Age in Britain*, states that 'it is not very typical, and might be either Aurignacian or Magdalenian'. It was found in close proximity to some skulls which Professors Seligman and Parsons described as differing from the Cromagnon (Aurignacian), and showing a greater similarity to skulls of the early Neolithic period, although displaying a general resemblance to the Chancelade (Magdalenian) type.

Many theories have been advanced as to the uses to which these mysterious objects have been put. They have been commonly found on the Continent in Magdalenian deposits, and a few specimens in Aurignacian and Solutrean 'floors'. The earlier have been plainer, and the later (Magdalenian) usually decorated with representations of animals or more simple linear and curved designs. Obermaier states that it is not impossible that the earlier forms may have had some practical use, but that later, as the types became more delicate, they seem to have been exclusively 'sacred'. The following are some of the uses suggested for them:—handles of slings, maces, tent pegs, dress fasteners, cheek-pieces of horse bits, instruments for dressing skins, ceremonial or magic staves, shaft or arrow straighteners. Cartailhac and Reinach considered them to be magic staves similar to the stone 'clavas cefalomorfas' of Chile and Argentina, and Obermaier inclines

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to this view. Déchelette called attention to the small proportion of complete specimens, the majority being broken at one extremity. This suggests that they were employed as tools rather than as symbols. The theory most widely accepted at the present day is that they were instruments for straightening the shafts of arrows. This theory is strengthened by the fact that modern Eskimos employ an arrow-straightener analogous to the so-called 'baton' (see fig. 227 British Museum Handbook to the Ethnographical Collections). But the Eskimo straightened his shaft by damping it, then binding it to the straightener, and leaving it in this position until it dried. In the case of the 'batons' it is more likely, from the grooves on the perforations and the angles of the perforations to the shaft, that, if they were arrow-straighteners, as appears most probable, the wetted shaft was passed through the perforation and then wrenched into shape. Dr H. S. Harrison in a review of *La Madeleine* by L. Capitan and D. Peyrony (*Man*, 1929, 68) writes :—'The appearance of the numerous "bâtons-de-commandement" that were found tends to suggest that their interpretation as shaft-straighteners is likely to be correct. If they were "chiefs' staves", then the chiefs were either extraordinarily numerous, or very careless with their insignia'.

AUSTRIAN LAKE-DWELLINGS

Dr LEONHARD FRANZ of Vienna, contributes the following notes :—

In three of the beautiful lakes of Upper Austria, the Mond-See, Atter-See and Traun-See, lie the remains of prehistoric pile-dwellings belonging to the Copper Age. They have yielded numerous objects such as pottery, axes, saws, clubs, stone arrowheads, knives, fish-hooks and jewellery of copper, necklaces of marble and perforated teeth. The muddy floor of the lake in which they lay has preserved things which would otherwise have perished, such as wooden axe-hafts, knives, spindle-whorls, fragments of mats and ropes, and articles of food. Thus the Upper Austrian lake-dwellings complete, in a very valuable way, our knowledge of the Alpine pile-dwelling culture already gained from the Swiss lake dwellings.

Recent investigations show that the lake-dwellings of Austria and Switzerland have no close connexion with one another, except for their general features and the influence of northern tribes which reached both

PLATE VI



BONE IMPLANT FROM CHIDAR

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regions. These investigations have thrown fresh light on the problem why men took the trouble to build their houses in the water instead of on dry land. The reasons seem to have varied in different lands and at different times.

In Upper Austria, a close examination of the sites shows that the Copper Age villages were situated quite near the shore and that the sites were carefully chosen with a view to trade routes. In the Mond-See one site lies close to the source of the river which connects this lake with its neighbour the Atter-See. In the Atter-See some pile-dwellings were found near the river Ager which empties out of the lake and connects with the river Traun. The Traun comes from the Traun-See, and in this lake also there are lake-dwellings, again near the source of the river. From this it may fairly be assumed that the lake-dwellings were connected with a system of water traffic. As we know from finds in Switzerland and in Germany, the people of the Copper Age used canoes made from tree trunks.

The reason for this traffic was, as we believe, the trade in copper. Numerous copper mines in the mountains of Salzburg and the Tyrol show that already at the end of the Stone Age men knew how to extract the metal. Since it was at this time a rare and precious material, it is obvious that a lively trade in it would arise. Starting from the copper district in Salzburg, where these prehistoric miners worked, numerous finds along the Salzach stream in a northerly direction show that this was the trade route to the Danube. From the site of the present town of Salzburg there is a natural road eastwards touching the lakes of Upper Austria. The distance between Salzburg and the Mond-See is only 30 kilometers, and when using this eastern route the copper traders had the advantage of the waterway, which was short and cheap, as it is even nowadays. From the Mond-See by way of the river mentioned above they reached the Atter-See, and thence by way of the rivers Ager and Traun came to the Danube, which was the great connecting link between east and west.

In the light of this theory, one can guess the origin of the lake-dwellings. They were a kind of ports intended to facilitate the copper trade, and perhaps they also acted as custom-houses to control it. That such a lake and river trade is not impossible is shown by the trips which the people round the Mond-See made in the last century in connexion with the timber trade. They left the lake in their canoes and went by just the route suggested above as having been used by the copper traders, as far as Vienna.

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THE ACROPOLIS

Mrs DINA PORTWAY DOBSON has kindly written the following description of an air-photograph (plate VII) of the Acropolis:—

The air-photograph shows in the centre the Acropolis, a great rock which runs roughly east and west in the midst of the Cephisian plain, standing out distinctly and to be seen by voyagers on the Aegean sea five miles distant, and forming the very heart of the city of Athens.

Athens as an archaeological site shares the fate of such cities as Rome and London, which have been inhabited uninterruptedly from the time that they were first settled. Each succeeding people or generation, bent on making the best use of the limited space at its disposal, was ruthless in sweeping away the outgrown buildings of its predecessors. Thus the soil of the Acropolis is a veritable palimpsest, made evident by the spade, and clearly shown in this photograph.

The first inhabitants, of neolithic times, have not left any conspicuous traces on the rock, and the earliest masonry now visible belongs to the Bronze Age, which was, probably, the period of the greatest material glory in the Aegean world. Between 1500 and 1100 B.C. Athens formed one of a series of strong and magnificent cities:—Mycenae the golden, Argos, Tiryns, Troy, and the slowly declining towns of Crete. On the Acropolis itself there have been found the remains of a Mycenaean palace and lesser houses, while the whole was girt with walls of Cyclopaean masonry—that dry-walling of the Bronze Age, here executed on a heroic scale. Some of this fortification remains today.

This civilization was swept away by the incoming of an iron-using folk, who worshipped Athena, and built a temple in her honour on the Acropolis, which in its turn fell, and was replaced by a new temple built on its ruins in the sixth century B.C.; a building with a stone peristyle. The ground plan of this can be seen in the photograph just to the north of the shadow cast by the principal building now standing, the Parthenon.

This temple was destroyed by the Persians when they vainly ravaged Athens in 480 B.C.; vainly because the folk had fled, and the invaders wreaked their vengeance on bare walls and olive trees.

It was when the city was triumphantly reoccupied after the Persian wars that it devolved upon the citizens, as a religious duty, to make good the devastation wrought on the homes of the gods by the barbarians. Athens, at the height of her splendour and wealth, undertook

PLATE VII



THE ACROPOLIS, ATHENS.
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the task in no grudging spirit ; and it is the buildings that she raised at that time, roughly between the years 448 and 438 B.C., that can now be seen.

Chief amongst these is the Parthenon, the great temple to the maiden goddess, built in the Doric style, of marble from the neighbouring quarries of Pentelicus. It was designed by Ictinus, and the building was carried out under the supervision of Callicrates. Its decoration is well known to us in England, since much of its fine frieze is in the British Museum, and is commonly known as the Elgin marbles. The temple remained standing, singularly complete ; serving first as a church, then as a mosque, and still retaining its roof till 1687, when a Venetian bomb fell on it while it was being used as a magazine by the Turks, and reduced it to the lonely ruin shown in the photograph.

To the extreme north of the ground plan of the older temple to Athena stands yet another sacred to the goddess Erechtheus, commonly called the Erechtheum. This was built on two levels, and is, perhaps best known for its southern porch of the Caryatids : female figures serving as pillars to support the roof.

At the west end of the rock appear the ruins of a series of buildings. These formed the Propylaea, or entrance to the precinct. This was nobly and spaciouly designed, and consisted of a great staircase with halls and porticos to the right and left ; one forming a picture gallery. On the south side stands the little temple to Nike Apteros, the Wingless Victory. This can be made out on the photograph, crowning the bastion on the south side. It has had a chequered career. Built by Callicrates about 426 B.C. it stood until it was taken down by the Turks, and finally rebuilt on their departure after 1835.

All round the Acropolis, and especially on the north, can be discovered fragments of the temples destroyed by the Persians, and used as masonry in the later rebuilding. Just so in many a church built in the fifteenth century we can pick out stones worked by the Normans, or even by Saxons or Romans.

To the south the theatre of Dionysus can be clearly seen. It was partly hewn out of the rock, and was constructed in 499 B.C. The ground plans of the temples to this god, built in different ages, are further yet to the south.

Extending in a long line roughly parallel to the western half of the Acropolis is work of Roman times, the Odeum of Herodes Atticus of A.D. 161 and other temples.

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Such are the principal buildings shown in this air-photograph, and it is not unbefitting that Athens the soaring and aspiring, Athens with Athena's bird as her symbol, should be depicted by the help of wings.

CONGRESS AT BARCELONA

An International Congress of Archaeology is to be held at Barcelona, 23 to 29 September. Invitations have been issued to all archaeologists and to many others likely to be interested, by the Secretary, Professor Bosch Gimpera (University of Barcelona). The date has been arranged so as to coincide with the International Exhibition, in which an important place is given to Spanish Art and Archaeology. There will be lectures and excursions, and altogether the opportunity of becoming acquainted with the important results achieved in Spain during recent years is one which should not be neglected.

NEW LANGUAGE DISCOVERED IN SYRIA

As we go to press a startling piece of news reaches us from Syria. The excavations which have just been carried on by MM. F. A. Schaeffer and C. Chenet at Ras Shamra, 8 miles north of Latakia, have yielded about 15 clay tablets covered with a cuneiform script of a hitherto unknown character. The tablets and the objects with which they are associated go back to the 14th century B.C.

The writing of Ras Shamra is actually quite different from that of the Sumerians or Accadians. It consists of only 26 or 27 signs, and is therefore evidently alphabetic, and analogous with that used by the Achaemenid Persians 800 years later.

What language is hidden behind this mysterious writing, which M. Virolleaud is attempting to decipher, we do not yet know.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

Among the objects from neolithic habitation-sites at Windmill Hill and Abingdon (excavated by Messrs Keiller and Leeds respectively) are certain many-pronged objects of stag's horn. The purpose of these is puzzling, but has been explained by comparison with similar objects used by the modern Esquimaux. It is interesting to learn that a precisely similar implement has been found at Spiennes in Belgium, the great neolithic flint-mining district. We hope to review Monsieur Rahir's book in a later number (*Vingt-cinq années de recherches, de restaurations et de reconstitutions*, Brussels, 1928, p. 183, fig. 99 ; compare ANTIQ. JOURN. VIII, 470). Meanwhile here is yet another, and apparently earlier, link between England and the Rhine-Meuse region.



A new camp has been discovered at Padbury, Bucks. It lies at the south end of the village, and the rampart is still fairly well preserved. It is called Norbury, and was found by Mr Nowell Myres, the clue being provided by an old estate-map belonging to All Souls College.



In our last number we said (p. 229) that Comte Bégouen and Monsieur Adrien de Mortillet had stated that the well-known painted pebbles of Mas d'Azile were all forgeries. We have received a letter from Comte Bégouen protesting against the attribution of this opinion to him, and another to the same effect from Professor Breuil. We regret having been misled by the passage from which we quoted ; but at the same time we must lay the blame entirely upon the equivocal manner of its publication. No one reading it would suspect that Comte Bégouen and Monsieur de Mortillet had held contrary opinions.

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In the present number we publish an article on the construction of megalithic monuments (and their wooden equivalents) by one who has seen and photographed the work in progress ! One thing more is needed, and that is for someone to make a film of it. Such a film would be of the very greatest interest to every educated person ; and of incalculable value in years to come.

Incidentally it is nice to know that Woodhenges are still being made and used in Assam and that they are closely associated with the cult of the dead.



Acting on a hint in Aubrey, Mr Stuart Piggott recently visited Alfred's castle near Ashdown Park in Berkshire. He found, as he had hoped, that the rampart was originally faced with Sarsen boulders, like Uffington castle. Several large sarsens are still *in situ*, and there are many more in the ditch. Potsherds (mostly of the late Iron Age) are abundant.



Mr C. W. Phillips dug a trench to ascertain the age and character of a circular enclosure at Moat House Farm, Wraxhall, Somerset (5 NW). He writes : ' It proves to be a small fortified enclosure, surrounded by two concentric ditches cut in the solid rock. The finds show that, at the time when the ditches were open to the bottom, a black Iron Age ware was in use. Typical Roman ware only occurred high up in the rubble filling, 1 ft. 6 ins. from the present surface. The ditches have been carefully cut in the solid rock with great labour, and I dug some way along the outer ditch to see how it carried on. I found it symmetrical with sides of equal batter, and a flat bottom '. A beehive quern was found in the inner ditch.



The excavation of the curious and interesting little ' double-camp ' at Kingsdown, near Mells, was resumed on 8 April. The rampart is of Roman construction (and a beautiful example of dry stone walling it is) ; it has an outer ditch of the same age, and it lies partly over an inner and earlier ditch. In this latter were found, amongst other things, two iron currency-bars and a native British coin attributed to the middle of the 1st century A.D. (*The Times*, 21 May, p. 17).

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Miss Garrod and her colleagues, who have been digging in caves near Sulaimaniyah in Iraq, have found Mousterian and late palaeolithic remains there (*Nature*, 9 Feb., p. 217). We shall look forward to hearing more about these excavations and the later ones undertaken on a (possibly mesolithic) site at Mount Carmel.



Undoubted proof of the existence of palaeolithic man in Ireland has been found by the members of the Bristol University Spelaeological Society, working in conjunction with the Royal Irish Academy (*Nature*, 18 May, p. 757).



Excavations at Battle Abbey, carried out under the supervision of Mr Harold Brakspear, F.S.A., have revealed the apse of William the Conqueror's church, and a large portion of the north side of the presbytery (*The Times*, 17 May, p. 11).



A discovery which, if authentic, is important, is reported from near Pekin, consisting of the teeth and bones of palaeolithic man (*Sunday Dispatch*, 9 June).



Monsieur Bayle, of the Prefecture of Police, has submitted his report on Glozel. It states that the articles examined have all been faked. The report does not appear to have been published (*Daily Telegraph*, 29 April, and *The Times*, 11 May, p. 13).



An infantry officer digging in his garden at Asker, near Oslo, found a Viking grave of the 10th century, containing a sword, spearhead, shield-boss, axe, two knives and a whetstone (*The Times*, 14 May).



The Michigan University Expedition, which has been excavating the ancient city of Karanis (Kom Aushim) in the Fayum, has found, amongst other things, a striking wall-painting and some papyri in Greek and Latin. These latter include private letters, a legal report and a contract of sale, all dating from the second century A.D. (*The Times*, 11 May, p. 14).

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Some interesting discoveries made on Lambay Island, off the Dublin coast, have recently been acquired by the Dublin museum. They were made accidentally and are described as of the first century and earlier. (*The Times*, 31 May, p. 15). Lambay has been identified with the Limnus of Ptolemy, mentioned by him next to Edrus (Hill of Howth). But there are difficulties in the identification.



A 'dolmen' has been opened at Presles (Seine et Oise). 'The floor is carefully paved. . . . On the inside are reliefs, well preserved but difficult to interpret. In one place an axe may be represented. The vestibule was probably filled intentionally in the Neolithic period. In it were found tools of stone and of bone, fragments of vases, and some bones of animals, fourteen in all. In the chamber were some forty objects of stone and bone, besides flakes of flint, and remains of the skeletons of more than a hundred persons of all ages and both sexes. Several skulls show that they had been severely injured and healed. The long bones also showed various fractures'. (*Amer. Journ. of Arch.* (1929), XXXIII, 119, summarizing *Revue Archéologique* (1928), XXVIII, 1-13).



It is reported that an air-survey is to be made of the ruins of Zimbabwe, which are now being excavated by Miss Caton-Thompson and her colleagues. So far as one can judge from published information, the area is admirably suited for this method of research, since not only will the ruins themselves yield up their plans but the whole district is covered with remains of ancient fields, tracks and settlements. For such, and especially the fields, air-photography is the ideal weapon. (*Daily Telegraph*, 25 April).



The examination of the western half of the nave of Glastonbury Abbey has been continued. This work is being directed by Mr C. R. Peers and Mr A. W. Clapham, President and Secretary respectively of the Society of Antiquaries of London, and Dom Ethelbert Horne, Chairman of Council of the Somerset Archaeological Society. Excavations on Ham Hill, Stoke-under-Ham, six miles west of Yeovil, at the Saxon cemetery at Camerton and at the Meare Lake Village have been continued.

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Colonel G. R. B. SPAIN sends us the following report:—

The North of England Excavation Committee have continued their work on the eastern end of the Roman wall during April, May and June 1929, in continuation of the autumn campaign of 1928 (*vide* the 2nd Report of the Committee). The Fort at Wallsend and its junction with the great Wall has been investigated, and its correct plan in relation to the modern streets has in the main been recovered. The north gateway of the Fort was located in Leslie Gardens, Wallsend.

In Newcastle the search for the lie of the Wall to the west of the 300 yards stretch, located in 1928 in the west of the city, has been actively carried on below streets and business premises, and a further stretch of some 600 yards has been added to the length discovered last year. The investigations show that the line runs from St. Dominics Priory (Red Barns) to the Sallyport gate in the old town Wall and from thence probably to the line of Silver Street.

The search for the lost fort of Pons Ælii has resulted in the location of a Roman occupation site at the Newcastle castle keep. An altar with a partially legible inscription, a denarius of Vitellius (A.D. 69), a Samian base of the potter Capellius of Lezoux, and other fragments, besides walling of a puzzling character, have been discovered.

The investigation of the course of the Vallum in Newcastle seems to show that the o.s. line in the Summerhill Grove district is wrong as no trace of the Vallum ditch can be located in this area. The turret on the Wall at Denton, discovered in 1928 (*vide* Report), has now been completely excavated and some interesting discoveries have been made.

[Since this was written, the fort of Pons Ælii itself has been found.—EDITOR].



The recently issued part of the *Bullettino de Paletnologia Italiana* completes the 47th year of publication. This very valuable serial, of which the earlier years are now so scarce as to be unobtainable, is very little known to English readers. Apparently only one private individual and two libraries take it in the whole of Great Britain. And yet the *Bullettino* is the only original source for a great deal of information on prehistoric subjects in Italy, and its price is low, only 40 lire (about 9 shillings English).

The current volume consists of 200 octavo pages, with index, bibliography and 19 pages of illustrations. The articles, written by the

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best archaeologists in the country, treat of all periods from the Italian palaeolithic to the Iron Age. A masterly article from the pen of the Editor himself, discusses the light thrown by recent archaeological discovery upon the origins of Rome. Readers of ANTIQUITY might well be urged to subscribe for this admirable publication or to induce their libraries to take it. It is indispensable to all who wish to keep *au courant* with the problems of Mediterranean archaeology. The Editor is Dr Ugo Antonielli, Museo preistorico Pigorini, Rome.



Some important work on the site of Beth-pelet (Tell Fara), in southern Palestine, which throws more light on the period of the Hyksos or Shepherd Kings who ruled Egypt before 1600 B.C., is reported by Sir Flinders Petrie in a letter to *The Times* 21 May, p. 15. Earth-camps of the Hyksos have already been found at Tell el Yehudiyeh and Heliopolis and to these can now be added a cemetery of over 20 graves with more than 100 scarabs and much pottery. Only part of the site at Beth-pelet has been dealt with, so that further graves may be expected next winter. Professor Petrie maintains that the whole scale of early European history depends on the chronology of the Hyksos Kings and to secure evidence for consecutive monuments of their period is one of the great needs of historical study. In a further letter (1 July, p. 15) Sir Flinders states that five great tombs of the Philistine rulers have also been found at Beth-pelet. Some contained several successive interments and their date is shown, by the names of Egyptian kings, to be between 1320 and 1100 B.C.

A full report of the excavations, with historical notes on Beth-pelet by R. St. Barbe Baker, is printed in *The Times* 6 July, p. 15.

The annual exhibition of the British School of Egyptian Archaeology was held at University College, London, last July.



A report on recent excavations in Italy is published in *The Times*, 14 May, p. 15. Work has been resumed at Aquileja—20 miles south of Udine—which was an important military station in the time of Augustus. At the old port on the Natisone canal, which connects Aquileja with the sea, parts of the quay, made with Istrian stone joined with iron bars, have been uncovered. The foundations of two great towers, which appear to have been built in consequence of some

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emergency, were found, the material used including fragments of sarcophagi, cornices, and plinths. Two tablets, with epigraphs of the 3rd and 4th centuries, were discovered. Near Como a sepulchre of 5th or 6th century B.C., and a Roman four-wheeled cart, have been found. At the cathedral of Torcello (Venice) a great Roman sarcophagus of marble was found under the cathedral altar during some restoration there. It is supposed to be the first tomb of San Eliodoro, bishop of Altinate, and protector of Torcello.



A further discovery at Agrigento (Girgenti) in southern Sicily has been identified by Prof. Marconi as the image of an 'Unknown God', the collar being a frontal plait of hair with a human ear at each end, indicating personality but without identifying features. The report (*The Times*, 15 May, p. 15) reminds us of the saying of St. Paul (Acts, xvii, 23) when he speaks of having seen an altar dedicated 'To An Unknown God'.



The Mission of the French Académie des Inscriptions et Belles Lettres at Minet el Beida, 7 miles from Latakia (Syria), has continued its excavations this season. Besides Cyprian pottery and bronze utensils, two bronze hawks of purely Egyptian style have been found, as well as a bronze statuette, plated with gold, representing Teshub, the Hittite war-god (*The Times*, 21 May, p. 13).



Mr A. H. M. Jones, of the joint expedition of the British School of Archaeology and Yale University at Jerusalem, reports (*The Times*, 8 June, p. 10) on the work at Jerash, Transjordan, where attention has been given chiefly to the ecclesiastical buildings. The church east of the Fountain Court, believed to date from the 4th century, has been uncovered, the masonry confirming the dating. A small church in the south-west angle of the town has also been excavated. The dedication and the name of its builder are given in two inscriptions in the mosaic floor of the nave. Yet a third site revealed three churches, two of which are dated as 6th century. They contain fine mosaics, one of which we hope to publish in *ANTIQUITY*.

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A report of recent discoveries on Hadrian's Wall appeared in *The Times*, 11 June, p. 9.



The Cairo correspondent of *The Times* (13 June, pp. 17-18) contributes an interesting account of the temples of Philae (of which air-photographs were published in ANTIQUITY for June last) and the effect which the decision of the Egyptian Government to raise the Aswan Dam will have on them.



There has been much activity on Romano-British sites during the last few months. In addition to the work on Hadrian's Wall reported elsewhere, excavations at York, Chester, and Caerleon have been continued. The Yorkshire Archaeological Society continue their work at the Fort of Brough-by-Bainbridge and also at Malton. At Kanovium the Cambrian Archaeological Society have completed four years' excavation by the examination of the area outside the north rampart. Excavations in progress at Caistor-by-Norwich, Richborough, and Lydney have also been continued.



A remarkable rock-painting has been found by Signor Cipriani in the Marandellas district of Rhodesia. Its particular interest is that there are two paintings, one superimposed over the other. (*The Times*, 21 June, p. 14).



An interesting account of the Roman galleys in Lake Nemi, one of which for the first time in nearly 2000 years has now been exposed to human sight, was contributed to the *Daily Telegraph* 22 June, p. 10, by Prof. Arduino Colasanti, the originator of the proposal to drain the lake.



An exhibition of Mr Woolley's finds during the last season's work at Ur was held at the British Museum in July. An account of the principal objects is given in *The Times*, 6 July, p. 9.

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. Books are occasionally included.

The Porlock stone circle, Exmoor, by H. St. George Gray. *Proc. Som. Arch. Soc.* (1928) LXXIV, 71-77, contoured plan, 1:120.

An account of a newly discovered stone circle, with full details of its condition and surroundings.

The Forests of Europe and their development in post-glacial times, by Dr T. W. Woodhead. *The Empire Forestry Journal*, VII, no. 2.

A valuable contribution to the reconstruction of prehistoric environment by a recognized authority. The paper was originally read before the British Association at Glasgow in 1928.

Some aspects of the post-glacial history of British forests, by Dr Erdtman. *Journal of Ecology*, XVII, 112-126.

A valuable summary by one of the leading continental authorities. Dr Erdtman has utilized the evidence of the pollen-content of the peat, and has something to say also about archaeological horizons.

History of the vegetation of the southern Pennines, by Dr T. W. Woodhead. *Journal of Ecology*, XVII, 1-34.

Contains important archaeological synchronisms. We hope to review it later.

British domestic sheep, by H. B. Booth. *The Naturalist*, no. 869, June 1929, pp. 203-207.

Interesting observations by a 'practical wool stapler'. He accounts for the large number of distinct breeds of sheep in proportion to the size of Great Britain, by the geological variety of the country. This opens up a promising line of enquiry for prehistorians.

What the Soil of Greenland tells of its mediaeval inhabitants, by Paul Nörlund. *Art and Archaeology* (May 1929), XXVII, 201-210.

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The Lincolnshire beakers of the Early Bronze Age, by Austin Lee. *Assoc. Arch. Soc.'s Reports* (1927), xxxviii, part 2, pp. 209-212; 5 plates.

A useful account of the 'eight beakers, and a few fragmentary remains of others' which have been found in Lincolnshire, with excellent illustrations of them and a schedule.

The Plans of York, described by George Benson. *Assoc. Arch. Soc.'s Reports* (1927), xxxviii, part 2, pp. 331-352

An excellent description of them, with small scale reproductions of plans of 1574, 1697, 1722, 1750 and 1785.

Neolithic flint implements from west Somerset, by C. F. Moysey. *Trans. Torquay Nat. Hist. Soc.*, 1928, pp. 81-9.

Iron Manufacture and Heat Generation, by Prof. Henry Louis. *Nature*, 18 May 1929, p. 762.

Abstract of the presidential address to the Iron and Steel Institute. A survey of iron working from prehistoric times.

The Caves of Altamira, by Prof. H. Obermaier. *Country Life*, 27 April 1929, pp. 606-8, illustrated.

Air Photographs of the Middle East, by O. G. S. Crawford. *Geographical Journal*, vol. LXXIII, June 1929, pp. 497-512.

ARTICLES IN THE *ILLUSTRATED LONDON NEWS*

Among the many important articles on archaeological discoveries and events which have appeared in the *Illustrated London News* during 1929 are the following:—

5 January. Bolivian relics at Tiahuanacu, 30 miles west of La Paz.

The wrecked statues of Hat-Shepsut, Thebes.

19 January. Drawings by Australian aboriginals. The illustrations accompany a review of Sir Baldwin Spencer's *Wanderings in Western Australia* (Macmillan, 1929, 2v., 42s.).

Article by Prof. F. Halbherr on discoveries in Trajan's Forum and elsewhere in Rome.

NOTES AND NEWS

26 January. The first Maya mosaic ever found. [At Chicheniitza, Yucatan].

Sumerian Art and Human Sacrifice, by Mr C. L. Woolley. [Illustrating his work at Ur].

9 February. Palestine as a home of ancient Man, by Sir Arthur Keith. [Based on the discoveries made in the group of caves in the Wady-el-Mughara on the slopes of Mount Carmel].

16 February. An early British Shield from Wales, illustrations and description by W. J. Hemp, F.S.A. [Found in 1873 on Moel Hiraddug in the Vale of Clwyd, formerly pronounced as Roman but now dated 2nd century B.C. Based upon a paper by Mr Hemp in *Arch. Camb.* (1928), LXXXIII, 253-84].

23 February. Excavations in Afghanistan by the French Expedition, directed by Mons. Alfred Foucher and others. [About 50 ancient sites have been noted but only 13 have been excavated. Among the finds are a fragment of high relief sculpture reproducing an episode in the life of Buddha, found at Hadda ; a 3rd century *stupa* with figures of Buddhas and Bodhisattvas ; and a great number of most remarkable statues and statuettes of Hellenistic character which point to Greek artists having settled at Hadda].

2 March. An account of a prehistoric iron mine found by Baron Von Miske and Dr Von Bandat at Velem, in western Hungary.

9 March. An article on the work of the German Archaeological Institute at Athens, where the site of the Dipylon, the main city gate, is being excavated.

23 March. Graeco-Celtic bronze urns and flagons of the 5th century B.C., found February 1928, on the site of Bouzonville abbey, near Metz, described by Reginald A. Smith, F.S.A. [One of the flagons is illustrated in colour in the number for 30 March. It is one of the most beautiful prehistoric objects ever found in Europe ; and it is good to know that it will find a permanent home in the British Museum].

6 April. Discoveries at the Gizah Pyramids in 1928-9, during the excavations conducted by the Vienna Academy of Science under the direction of Prof. H. Junker.

The finds include an alabaster offering-plate ; statues of King Seshemnefer *in situ*, and of the court physician Ni-'Ankh-Re ; sarcophagi ; inscribed stone blocks ; and alabaster vessels used for offerings to the dead.

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Drawings on stone of an Impala ram now in the South African Museum at Cape Town, and of a vulture on basaltic rock found at Klerksdorp, western Transvaal. [They are described by Mr Herbert Lang, who has further articles on prehistoric drawings in the issues for 13 and 20 April].

18 May. Illustrations of the Parthenon Frieze showing, by means of the juxtaposition of plaster casts made for Lord Elgin in 1801, how the parts still *in situ* on the temple have decayed.

15 June. Discoveries at Constantinople by Mr D. Talbot Rice, field director of the British Academy Archaeological Expedition.

29 June. The Zimbabwe Ruins, by Mr J. P. Cope. Historical sites in Iraq, from air-photographs taken by Wing Commander Insall, v.c.:—Mutawakkil's palace at Samarra, the 'Median' wall, Hatra, and moated mound at Tall Alij.

Articles on The Past in Persia, by Professor Ernest Herzfeld. I. The prehistoric period (before 550 B.C.), 19 Nov. 1927. II. The Achaemenian period (550–330 B.C.), 24 Dec. 1927. III. The Hellenistic and Sassanian period (330 B.C.—630 A.D.), 11 Feb. 1928. IV. The Muhammedan period (630 A.D. to the present day), 18 Aug. 1928.

We make no apology for including the above series in our list though it was published some time ago. Prof. Herzfeld knows Persia and Iraq better than any other living man, and he writes at first hand. The *Illustrated London News* has reproduced the photographs of his latest tour in its usual admirable fashion. The illustrations include Pasagardae (I); Persepolis (II); Kale-i-Dukhtar and Tak-i-Bustan (III); Khargird, Mosque of Waramin, and many other Muhammedan sites (IV). Prof. Herzfeld's text is an excellent, if naturally too brief, summary of the history of the region. The captions however (which are not Prof. Herzfeld's work) leave much to be desired, as usual. The habit of inverting the proper sequence and putting the name and description of the picture last is most aggravating.

Prof. Herzfeld has contributed a new series of articles to the *Illustrated London News* (25 May, 1 June, 8 June, 1929) which deal with prehistoric Iran. The first concerns the relations between the neolithic settlement of inner Iran and the oldest civilizations of Elam (Susa I) and Sumer (Ur and Kish). The second article describes the early Bronze Age settlements near Nihawand and the last deals with the Stone and Bronze Ages in northern Iran.

Reviews

GREAT BRITAIN: Essays in Regional Geography by twenty-six authors. *Edited* by ALAN G. OGILVIE, O.B.E., M.A., B.SC. *Cambridge*, 1928. 21s.

Readers of *ANTIQUITY* hardly need to be reminded that archaeologists must attend to geography; for it has been one of the constant cares of this journal to emphasize the importance of maps, and the scientific reading of maps, to the student of early human history. Therefore a detailed geographical survey of Great Britain is sure of a welcome in these pages. It would have been still more welcome had it been the work of a single writer, or a band of writers working in close collaboration. But the parcelling-out of a field of study among a number of independent contributors, following no common plan and sharing very few ideas as to how their section ought to fit into the whole, can never make a satisfactory book. Every contributor brings his own perspective, his own scale of values, and his own opinions, to bear on his region: and the result is that no inexperienced reader can determine exactly how far the differences which the book seems to reveal between one region and another are differences between the regions or merely differences between the points of view from which they have been described. Thus—to take a question of great importance for archaeology—how far would it be true to say that the chalk uplands were found by early man free of woodland? One writer says quite simply: ‘With pasturing excluded chalk grassland would be occupied by scrub and beech forest’ (p. 26). Another says ‘it seems probable that these areas were originally forested’, because ‘an authority has recently stated, on the basis of ecological investigations, that ‘the vast bulk if not all of it (the English chalk) would pass into woodland if pasturage were withdrawn’ (no reference is given to the ‘authority’; p. 75). This writer also adduces, as evidence for primitive forest on the chalk, the alleged fact that ‘in earlier (Neolithic?) times . . . a moister climate prevailed’ (p. 26). A third writer says ‘there is no substantial evidence of any change in the total amount of annual precipitation in this part of England’ (p. 135) and that ‘it is virtually certain that the heavy undrained clays of the lowlands were covered primevally with forest or swamp, while the uplands, the home of the earliest inhabitants, were relatively clear’ (p. 137). Now the first writer is speaking primarily of Kent, the second of Hampshire, and the third of the southern Midlands; but the difference between the first two and the third appears to be a disagreement on a point of botanical geography, not a difference between chalk uplands south and north of the Thames respectively.

It is not within the competence of this journal to criticize the main body of the book, its geographical portions, in the stricter sense of that rather compendious epithet. But in most of the chapters there are statements, often amounting to formal paragraphs or sections, about the early human history of the region; and on these portions we can hardly avoid commenting. Some contributors, including some of the best, omit these matters altogether. Some of those who deal with them, deal with them creditably. The fact that Professor Fleure writes the chapter on Wales is a sufficient guarantee for the treatment of the ethnology and early history of the Principality. The writer on

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East Anglia has used Dr Fox's *Cambridge Region* and Mr Leeds's *Anglo-Saxon Settlements*; though why he should say that Brancaster was the headquarters of the Counts of the Saxon Shore, I do not know. But in a good many cases the statements about early history not only show little sign of personal knowledge or research, but do not even seem to have been submitted for criticism to someone who knew the outlines of the subject. Thus one writer, who tells us that the highly-developed regional consciousness of the Devon-Cornwall peninsula 'took shape in prehistoric time'—an *obiter dictum* which one would like to see discussed in the light of evidence—also says that in this peninsula 'traces of the Romans are generally scarce though they are found as far west as Exeter' (p. 105). This seems to mean (a) that scanty traces of the Romans are found at Exeter and farther east—which is misleading; for a visit to the Exeter museum shows that the relics of the Roman town of Isca Dumnoniorum are not particularly scanty—and (b) that no traces are found farther west, which suggests that the writer has not even gone the length of looking up the *Victoria County History* of Cornwall or the Ordnance Map of Roman Britain. Another writer informs us that 'the oldest human trackway in Britain (the medieval "Pilgrims Way") led westward to Salisbury Plain where stood Stonehenge, our prehistoric capital' (p. 29)—exciting our unsatisfied curiosity as to the methods by which the dates of *all* British prehistoric trackways have been fixed, and adding another to the theories concerning the nature and purpose of Stonehenge. But the most painful part of the book, to the archaeologist, is that which describes Cirencester as a Roman military base and Bath as a Roman colony (p. 120), and, discussing the Anglo-Saxon settlement, states that 'during this period the route to the lower Severn *via* the Thames valley was blocked to the Anglo-Saxon invaders at its eastern end by the fortress of London' (p. 121). The assertion that the walls of London are responsible for the lack of early Saxon settlements in the lower Severn basin is about as well founded as the description of Bath as a Roman colony. But worse is to come. Bristol, we learn (p. 123), was a Romano-British town with an elaborate history and some very remarkable features. 'Bristol was walled only about a century before the withdrawal of the Roman legions. The form of ancient Bristol and the street lines are so like those of Glevium (*sic*; can Glevum be meant?) and Aquae Sulis as to confirm the view that the imperial plough originally marked out her *pomoerium*, the inner line of which can still be traced'. One would like to ask (i) what single shred of evidence there is for a Roman town at Bristol—since street-lines are not evidence; (ii) if there was such a town, where the remains of its walls are; (iii) what tangible evidence dates these walls to the early fourth century; (iv) on what grounds the author ascribes a *pomoerium* to a minor provincial town; and (v) what he means by the 'inner line' of a *pomoerium*.

R. G. COLLINGWOOD.

ART IN ANCIENT ROME. By EUGENIE STRONG. (*Ars Una : Species Mille series*). Heinemann. 1929. 2 vols. pp. xvi, 199, viii, 221, and 584 text-figures. 20s.

Mrs Strong's indefatigable championship of Roman Art, as against the one-sided attitude which 'claims perfection for the art of Greece, and denies even merit to that of Rome', as she herself wrote some twenty years ago, has been of the greatest service to archaeological and artistic study; for it was high time that the tyranny of Greece—an excessive revenge for the failure to appreciate the Elgin marbles a century ago—should at last give place to a more reasonable frame of mind. In the present volumes, with the battle almost over, she is able to speak of 'what Roman sculptors could accomplish when

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they threw overboard the paralyzing influence of Greece ' in reproducing a most lovely sepulchral statue of a woman, which has recently come to light near Rome (II, 124), and even to gibe (II, 125) at the Hellenists for being shocked at ' the combination of a fragile support with a heavy half-bust ' (that of Commodus in the Palazzo dei Conservatori). In truth, Roman art is not Greek art, and never pretended to be ; but it has a real existence and real merits, not the least of which is the sympathy it manifests in its representations of children, of women and of the old and ailing, and Vergil's rather unfortunate remark : ' Others, I ween, shall hammer out the breathing bronze with softer grace, and call from marble the living face ', has too long been used in evidence against it. Such a piece of self-condemnation, of course, proves out of the Roman's own mouth that in matters of art he is only fit to repent in sackcloth and ashes in face of the more fortunate beings who were born into the blessings of Hellenic culture.

In the compass of the volumes before us (four hundred pages of text and nearly six hundred illustrations) we cannot expect more than a summary treatment of the whole subject ; and, in contrast to her previous book on Roman Sculpture, Mrs Strong here (and rightly) begins at the very beginning, and takes in architecture, painting and so forth—art, in fact, in all its manifestations, from prehistoric times to the reign of Justinian. This being so, it is impossible to expect full treatment of points of detail, though there is one deficiency in the illustrations that may be mentioned at once : no example is given of the beautiful little sepulchral altars and urns that are only briefly mentioned in the text (I, 146). On the other hand we are fortunate in having many of the more recently discovered pieces of sculpture brought before us ; it is remarkable that of fifty or sixty accredited portraits of Augustus, two of the four or five more striking have come to light within the last twenty years. It is interesting to notice that Greek influence, which at an earlier period had come in to some extent through the Etruscans (who, however, always preserved a strong individuality), was at its highest in Rome during the last century of the Republic, both in architecture and in art ; whereas it was under Augustus that the Romanization of Mediterranean art was accomplished. From his time onward it progressed vigorously and independently ; as Mrs Strong notes, even Hadrian, frequently as he had visited Greece, steered free of Greek influence in his building schemes for Rome and ' to talk of the Hadrianic ideal as " stale classicism " which claimed to be a revival of Greek art, is simply nonsense '. But the ' *los von Rom* ' movement persists both in art and architecture and continues, on what often seems to be insufficient evidence, to seek Oriental origins everywhere. There has been a great deal of exaggeration in this direction in the past, and it shows, unfortunately, no sign of decreasing. At the same time it is a mistake to think that Rome has yielded up all her secrets—far from it. We must indeed walk warily in making assertions, even about the best known buildings in Rome. Thus, it has generally been believed, and our author only follows precedent in saying so, that the basilica of the Flavian palace on the Palatine had a flat roof and two stories of columns, while the large hall adjacent, known as the *Aula Regia*, had a huge barrel vault. But here comes Professor Giovannoni with the statement that the basilica had a barrel vault resting on one order of columns and that the *Aula Regia* was a colonnade court, and offers to prove it to us by the drawings (as yet, unluckily, unpublished) made by his students in 1922. Equally well known works of art, with the exception of those that are dated by external evidence, have a way of changing their dates with bewildering rapidity. We have long been used to assign the balustrades in the Forum to the reign of Trajan, though fully aware that some scholars have considered them to belong to the time of Domitian. Now they are thought by some to be early Hadrianic (II, 72, but see

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II, 83). Again, the almost equally well-known relief, one part of which is in the Museo delle Terme and the other in the Lateran, after figuring in all the text-books as a representation of a scene in front of the Temple of Venus and Rome, which was built by Hadrian, has now been transferred to the Julio-Claudian period by Sieveking, and consequently has to be referred to the predecessor of the present Pantheon if (which is not certain), this building can be proved to have had ten columns in the front (I, 132, 165). Similarly, a relief which probably represents a scene in front of the Temple of Quirinus, after having been dated by one authority to the reign of Caracalla, is now thought to belong, in all probability, to the reign of Hadrian (I, 132), though other authorities consider it Flavian. And we must not forget that one of the dangers that beset the discussion of historical reliefs is that of restoration. Thus, the relief of the Suovetaurilia in the Louvre (II, 66), in common with many other reliefs in that museum, has been heavily restored, including the 'face of the Emperor, who now resembles Domitian, but may have been originally someone quite different'. Mrs Strong herself once thought it to be Augustus, and the idea met with the approval of Michon at that time. And it may be simply a counsel of despair that has led Mrs Strong, in speaking of the famous reliefs of processions on the Ara Pacis, to remark, in view of the uncertainty of the recently proposed identifications of the personages who are seen there, that 'possibly nothing was intended beyond a generalized representation of the Imperial family and household on the south side, and on the north of a Senatorial group followed by a crowd of more miscellaneous character' (I, 140). I must say that I find this somewhat hard to believe, for it would seem much more natural that the portraits of definite persons should be given. The figures do not seem to be very highly idealized, and, given the difficulty of identifying the group of Imperial portraits found at Formia a few years ago (I, 188), it is better to confess our ignorance in this as in other matters. I must myself plead guilty to adding to the general confusion in one instance where Mrs Strong has quoted me (II, 74). I was prepared to follow Dr Van Deman's previous opinion in assigning the brick-work (there are no brick-stamps recorded from it, so far as I know) of the Amphitheatrum Castrense to the period of Trajan; but she has now decided to assign it to the period of Septimius Severus, thus agreeing more or less with Rivoira—as I have stated in the addenda to the Topographical Dictionary to which Mrs Strong has referred in the preface, and which has just been published by the Clarendon Press.

The fact is that, when the writing of a history of Roman Art (which is what this book really is rather than a criticism) is approached, the limitations of our knowledge become obvious; and this fact has offered too much scope to some of the brilliant German scholars who have read too much of their own philosophy into the creations of sculptors, who were in reality of a far lower mental capacity, and attempt to date and redate works of art from considerations which can hardly even unconsciously have come into the minds of their authors. What is the remedy for this state of things? Is the bewildered student to come to the conclusion that the text-books are untrustworthy? By no means; but, inasmuch as the general public cannot be expected to take an interest in the details of archaeological discussion, it is impossible for Mrs Strong, as for any author of a similar book, to give any idea of the uncertainty which still pervades many of the problems with which she has to deal; and so she herself has wisely decided to avoid the thorny paths of controversy.* One cannot help thinking, however, that in such cases means might be

* cf. also II, 83. 'In the present inadequate state of our knowledge it is hazardous to establish hard and fast decisions on bare and comparatively slight differences of style'.

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found for drawing a very clear distinction between what we do know beyond any reasonable possibility of doubt, and what is still *sub judice* : between what is matter of fact and what is matter of opinion. And there is only one way out which, let us hope, will soon be adopted, and it is this :—that Mrs Strong should give us a really detailed book on the subject of Roman Art, written in the first instance for students and specialists (though that does not mean that she will not be able to make it acceptable to the general public), in which she should give us her own views in full, with the reasons that she has for holding them against the opinions of other scholars.

In dealing with a book that contains so much of interest it is impossible to give a full idea of its contents ; but a few examples of points of special interest may be taken, and first of all the passage in the description of the Ara Pacis where attention is called to the triumphant entry of the child into art, so full of importance for subsequent ages (I, 140). The chapter on painting under the Early Empire is excellent, though the little *putto* represented in fig. 290 should have been made to take his place in a far larger scheme, represented in a drawing in the Topham collection (IV, 39). One of the most striking plans produced by an ancient architect is that of the long, narrow Forum Transitorium (fig. 331) which was 'laid out in default of more space, as trapezoidal'. The effort to reconcile two divergent orientations had already obliged the builders of the Basilica Aemilia to place its side façade at an acute angle to its main façade, and the same will be found to be the case here also. But Rabirius, Domitian's architect, managed to escape the monotony that a long narrow approach to the Temple of Minerva would have created, partly by this splaying out of the Forum as it approached the Temple, and partly by decorating the interior of the enclosure wall with a row of projecting columns, round the entablature of which runs a sculptured frieze. A very interesting point is that made by Lehmann-Hartleben, that the chamber and the stairs of the Column of Trajan were not part of the original plan (II, 76, 80). The windows interfere terribly with the design of the frieze, which was complete before they were introduced (though its execution in marble had not actually begun) and was not modified to include them.†

Considerations of space compel us to close this notice, but sufficient has been said to show that Mrs Strong's book is a work of outstanding interest and, let us hope, only a prelude to that full critical treatment of this fascinating subject which she has now given us the right to expect and anticipate.

THOMAS ASHBY.

NUMANTIA. Band IV : die Lager bei Renieblas. pp. xix and 309, 82 plates. Folio volume of 32 plates and 2 maps. München : Bruckmann. £6 10s.

In *Numantia* IV Dr Schulten brings to a close his notable work on the Roman camps in the district of Numantia. Volume III (reviewed *ANTIQUITY*, II, 489) dealt with the actual circumvallation of Scipio, which resulted in the capture of the hill-town in 133.

† A number of points of detail can easily be set right in a second edition ; thus, the Temple of Jupiter on the Capitol, though it 'had been burnt down by the Vitellian soldiery' (II, 56), had been rebuilt by Vespasian and burnt down yet again in 80 A.D. before Domitian restored it. There is not a vestige of brickwork in the Mausoleum of Augustus (I, 136). The Claudian harbour was not 'a good way' from the mouth of the Tiber at the time of its construction (I, 162). The reconstruction of the temple of Venus and Roma is attributed to Aurelian instead of Maxentius (II, 93) and the transference of the obelisk of Antinous to the Pincio is attributed to 1633 instead of 1822 (II, 108). In one or two cases (no doubt owing to the delays to which Mrs Strong alludes in her preface), the legends of the illustrations have been transposed (figs. 82 and 83, and figs. 180 and 181 may be cited).

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The present volume describes a complex of five camps, which overlie each other on the rolling hill-top of Gran Atalaya, near the village of Renieblas ; and contains notes on three other sites, Almazán, Aguilar, and Alpanseque. The whole work is a magnificent contribution to the subject of Roman castrametation, and provides, in ample measure, the richness of interest which I predicted in a former number of ANTIQUITY. It is a triumph of patience, and a masterpiece of skilful disentanglement.

Gran Atalaya is a rolling hog-back, which rises some 112 metres above the valley of the Merdancho, at its junction with the stream Moñigon. The Merdancho is most accessible for watering, the Moñigon carries the Roman road from Numantia to Augusto-briga. Numantia lies four miles away, in full view, at the confluence of the Merdancho and the Duero, and can thus be watched, at a safe distance. Herein lies the strategical importance of Gran Atalaya and on this hill were erected successively the following earthworks.

I. A camp 345 metres wide, with very gently curved angles, adjusted to the contour of the hill. Length uncertain, since the south side, and most of the east and west sides, are missing. Rampart, 2-2.50 metres wide: stone-faced with earth and stone filling. Scattered internal buildings, which are fragmentary. A simple gateway. No ditch, owing to rocky soil. Possible *ballistarium* at the NW angle, detached from the wall, as at Pena Redonda and Valdevorron. Dr Schulten believes it to have been set out with the *actus* (120 Roman feet) as the unit ; but there is a 27-foot discrepancy. Date : the oldest camp on the site. Dr Schulten connects it with Livy, xxxiv, 19, and Aulus Gellius, *N.A.*, xvi, 1, and hence with Cato. Ingenious, and consistent with every scrap of evidence ; yet it must be said that the evidence is quite insufficient. This disappointment is compensated by an extremely interesting discussion of origins.

II. The north end of an earthwork, which merges with the north rampart of III, at the east tower of the *porta principalis dextra* of III, and thus masks the gate. Breadth, 415-420 metres ; length uncertain. No internal buildings. Date : certainly later than I, but the relation to III is not satisfactorily determined. Since III possesses an annexe on the east this might be another on the north ; and the case is not really decided by the masking of the main north gate, since there was another gate (*porta quintana dextra*) on the north side. It is, then, either III's north annexe, or an independent summer-camp, as Dr Schulten freely admits.

III. A winter blockade-camp, for two legions, watching Numantia. Its form is irregular, in an attempt to adopt an oblong to difficult ground. North side, 400m, east side, 850m, south side, 740m, west side, 510m ; axes, 709m each (=2400 feet=20 *actus*). Orientation agrees with September sunset. Rampart, 3m wide ; ramps to same, 10m long, by 0.70m wide. No ditch. Towers of three different sizes, holding artillery, at an average interval of 100 feet. Four main gates ; two *portae quintanae* ; possibly a postern at the NW angle. *Porta decumana*, *principalis dextra*, and *quintana dextra* well preserved, with internal (? staircase) towers, 3m broad by 9m long. The *intervallum* is 27m in average width.

The internal buildings are of the greatest interest. Only a fragment of the *praetorium* remains, sealed by a fifth-period deposit. It seems to have been a range of rooms round a courtyard, with peristyle. Its orientation is different from other buildings, but parallels for this are not wanting, and Schulten gives a very interesting series. Behind the *praetorium* lies a sumptuous cavalry barrack, for a *turma amicorum* ; then a *forum*, which produced evidence of trade ; then the *quaestorium*, a courtyard store-house, with independent offices, not unlike the great Corbridge store in plan. The tribunes' houses

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are small square blocks, with a central access passage, instead of the usual courtyard of later ages, and inside them *triclinia* are provided for officers' mess. The barracks are not the familiar Imperial L-shaped pattern. Cavalry barracks are in two sizes : in each case the central feature is an oblong building 80 feet by 25 feet square, with a wing at each end, in one case 75 feet long, in the other 90 feet. Stalls and men's quarters are mixed, as the finds prove. The ordinary barracks are similar in shape, fitted into a square 130 by 130 feet, and the central building is used entirely for pack-animals. Exceptional are the Allies' barracks, fitted into an oblong 270 by 190 feet. The planning results entirely from the needs of the pack-animals or cavalry in exercise or deploying ; the Imperial *strigae* only appear as the importance and use of horses departs. Three indubitable latrines were recorded, to seat twenty, ten, and eight, respectively.

In the east annexe, whose two gates were guarded by *tutuli*, auxiliaries were quartered. The chief interest here is that the barracks vary from the courtyard plan to the normal *strigae*.

Date : the general period is not in doubt. The camp dates before the fall of Numantia, which it watches ; and Dr Schulten seems clearly right in maintaining that it has nothing to do with the final operations of Scipio. Again, the hoard of 120 *victoriati* seems to connect the camp with Mancinus rather than anyone else, and Mancinus is recorded to have occupied the camp of Nobilior. Finally, the wine-jar stamp APIZ is to be assigned to before 146 rather than after. On the whole, then, the connexion of the camp with Nobilior in 153, whose force it would nicely contain, is to be accepted as likely. Whether Dr Schulten was wise, however, in calling it Nobilior's camp outright, is another matter. Once the general date of the camp became clear, its whole importance lay not in the man who built it, but in how it was built.

IV. A summer camp, 855 by 670 metres in size, with sharp rectangular angles ; eight gates, defended by *tutuli* ; 3-metre rampart ; no ditch. From the north-west angle an outwork (*bracchium*) runs down to the Merdancho, to protect the watering. It is 2-3 metres wide, and has two gates, protected by *tutuli*, and serving as sally-ports. Date : clearly connected with v, by style, and by its position in stratification between III and v.

British readers will welcome the useful classification in sizes, for purpose of comparison, of the Scottish summer-camps, which Dr Schulten essays at this point. This may enable them to forgive the facile assumption that all belong to Agricola (who appears as Agrippa three times). Nor is the site of Mons Graupius to be settled in parenthesis. German readers will note that nothing which Dr Schulten asserts about Agricola is in any way proved. Gilnockie and Newstead may be added to his list.

V. A very large winter-camp, 650m broad, by 965m long, with a rampart 4-4.40m thick. *Intervallum*, fifty feet. Towers lie mostly on the north (not facing Numantia), and are small or very wide, to suit single pieces and batteries of artillery respectively. They have ramps. The number of gates is uncertain, but there were at least ten. The principal buildings have been ploughed out. But there were discovered, on each side of the *praetorium*, a notable series of quarters with *triclinia*, in double rows. Dr Schulten assigns these to the *cohors amicorum*. The tribune houses are of the later Imperial type, with central court-yard, and are slightly larger than another group, which are assigned to the *praefecti*. Barracks, of the old-fashioned type, in two sizes, 90m by 60m, and 60m by 60m, apparently to fit *cohortes quingenariae* or *miliariae*. But there is this difference, that the central block is occupied by men, and not by baggage-animals. We may add to the list granaries (*horrea*), of typical Imperial plan, built on the basis, as

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calculated by General Wahle, of three months' rations. Date : coins and pottery assign the encampment to shortly after the age of Sulla, and Caceres el Viejo provides an important analogy. Dr Schulten gives iv to Pompeius in 75 and v to Titurius in winter 75-74.

So much for Gran Atalaya. Almazán and Alpanseque are two summer-camps on the route from Sigüenza (*Segontia*) to Numantia. The former is now much destroyed, but was a rectangle 800m by 475m in size, in which two gates were visible. Alpanseque is a contour camp, roughly circular in shape, with axes each 253m long. Aguilar is a winter-camp, on the route from Segontia towards the Ebro valley. It is very irregular, adapted to the contours, with axes of 384 and 373 metres. Its rampart is 2.20m wide, and its gates are arranged in the angle of a set-back in the rampart-line, like those of Hofheim and Newstead I. In each case, a tentative date is put forward ; but the choice is wide, and many will prefer to leave it open.

Descriptions of finds then follow. Metal objects, other than iron, by von Groller ; iron objects, by Jacobi ; coins, by Haeblerlin ; pottery, by Koenen. Plates, excellent ; with the exception of I.2, which is out of focus, and x.1, the type of drawing which is not worth reproduction. Those in the folio volume are all good : and it is perhaps useless to protest against their great size. Half the size would have served equally well, and would have been far easier to handle and consult.

On a previous occasion, I dealt at some length with the care and patience which these important excavations have required. This volume raises another point. The whole interpretation of the vast body of evidence from the Numantia district, which covers the contents of volume III as well as volume IV, is a task of great delicacy, especially in the connexion of archaeological and literary evidence. It is not always possible to forge a link between the two that will bear the strain of criticism. In other words, not one interpretation alone is possible, but several alternatives. Dr Schulten, immersed in the problem for many years, as no one else has been, has formed his own view of the probabilities, and has not hesitated to state it. It is, however, stated without undue stress or dogmatism, and the careful reader of the book is able to pick his way among the evidence, without being influenced unduly at points where the connexion is thin. This will induce him to give all the more weight to Dr Schulten's interpretation where it is indubitably right. Meanwhile, the archaeological sequence will stand, and with it all the structural details which have been discovered. This is the real importance of the work : nowhere else will the student find detail of the same kind, and it is not too much to say that it opens an entirely new prospect to the historian of the Roman Army and of ancient civilization. The work is a classic, and will remain so for as long as Roman studies continue to interest mankind.

I. A. RICHMOND.

FORMA ITALIAE : Regio I, Latium et Campania : volumen I, Ager Pomptinus : pars prima, pars secunda. By G. LUGLI. Published by Danesi (Rome) for the *Unione Accademica Nazionale*. 1926, 1928. pp. xxvi and 218, xiv and 75. 320 and 150 lire.

The magnificent work of which these fascicles are the first two instalments modestly announces itself as a preliminary topographical study for the Italian section of the *Forma Imperii Romani*, the great map of the Roman Empire which is being promoted by the *Union Académique Internationale*. The *Forma Imperii Romani* is to be a small-scale map ; but an archaeological map on a small scale—like any other small-scale map—is of little value unless it has been reduced from an original on a considerably larger scale. The Italians therefore decided to make a new archaeological map of Italy on a scale of 1:50,000

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(roughly corresponding to our scale of one inch to the mile), with special areas shown on a scale of 1:25,000; falling back on the scale of 1:100,000 in districts where archaeological material should prove scanty.

This project took solid shape in 1923, when six learned bodies in Italy combined to form the *Unione Accademica Nazionale*. This newly-formed association took over the plan of a *Forma Italiae*, with assistance from the Ministry of Antiquities and Fine Arts, and divided up the ground on the basis of the divisions between the sheets of the 1:50,000 map. Italy as a whole is divided into the eleven *regiones* of Augustus, of which Latium and Campania is the first to be dealt with. The first volume is to consist of three parts: Terracina, Circeii, and the main tract of the Pomptine Marshes as far north as Sezze. The parts here noticed are those describing Terracina and Circeii.

Part I begins with a general outline of the history of Terracina, or Anxur, from the earliest times: first as a prehistoric town resembling a *terramar*a in plan, then as a Volscian walled stronghold, captured by the Romans in 406 and converted into a Roman colony; undergoing a period of stagnation in the later Republic but enlarged by Sulla, and awakening to new life under the Empire. The great road-building and harbour-making works of Trajan and Antoninus Pius are of special interest; the circular harbour nearly a quarter of a mile in diameter, now silted up but projecting boldly into the sea like a huge bastion, is a fine monument to the prosperity of southern Latium in the second century, a period in which the town seems to have spread in every direction. The early third century still shows a similar activity in the building of roads, a new forum, and so forth. At the close of the ancient world come the fortifications which Sig. Lugli ascribes to Belisarius.

Part II describes the isolated mountain of Circeii, that juts out into the sea at the far-away southern corner of the Pomptine Marshes—the legendary home of the enchantress Circe, and the site of a temple of Venus, to whom, it has been suggested, the mountain was thus dedicated because of its extraordinary beauty. Here again there is an ancient town whose history and topography are described in detail; but the chief interest of this part is in the account of the ruins by the lake at the foot of the mountain, which Sig. Lugli shows to be not the remains of Circeii itself, transplanted to the shore of the lake in the Imperial period, as had hitherto been thought, but the ruins of a villa belonging to the Emperor Domitian.

Both parts are copiously illustrated—together they have about 350 illustrations—with maps, plans, drawings, and photographs, including some excellent air-photographs. The descriptions are terse and businesslike, without a word wasted, and it is impossible to read them without admiration for the vigour of a people that dares embark on so gigantic a survey of its own antiquities, and for the skill and thoroughness with which Sig. Lugli has already accomplished an appreciable fraction of the task.

R. G. COLLINGWOOD.

SOUTH AFRICA'S PAST IN STONE AND PAINT. By M. C. BURKITT. Cambridge, at the University Press. 1928. pp. xiv, 183, with *frontispiece*, 8 plates, map, 30 figures. 12s 6d.

Hitherto we have had only a few comprehensive general books dealing with the prehistory of South Africa. Foremost, of course, is Péringuey's publication,¹ which

¹ *The Stone Ages of South Africa as represented in the Collection of the South African Museum* (Annals of the South African Museum, VIII, 1911).

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brings together a mass of most valuable material—unfortunately however so badly arranged that to obtain from it any idea of the true order of development is almost impossible. The works of J. P. Jones, including the latest,² doubtless mark an advance, but Jones had too strong a tendency to find represented in South Africa only those cultures known in Europe during the late palaeolithic period. For many, too, of the facts his interpretation was wrong.

We must therefore give a warm welcome to Burkitt's small but very important work—the fruit of his studies during a long tour in South Africa—on the cultural development of this district during the Stone Age, the site before now of such rich material for finds. Burkitt writes for a wider public, and therefore includes some introductory chapters; these however even the specialist should not entirely omit, for on pp. 16ff there is in outline a scheme of the cultural chronology of South Africa which is fundamentally important for the author's point of view. The material evidence is contained in the definitely archaeological chapters of the book, with more circumstantial detail. Here we learn that the South African *coups de poing* are entirely representative of an early palaeolithic epoch, not a later type of the Campignian pattern, as has lightly been assumed in recent times. There is also evidence of the influence of a Mousterian type of culture. While the older Stone Age development shows a close analogy to that of Europe, the later is entirely divergent from it. Burkitt is next able to establish a cultural stratum which is closely allied to the middle Capsian; its connexion with North Africa has also been shown already by some of the finds made by Leakey in Kenya Colony. Burkitt considers that the Still Bay industries, the most striking implements of which are the laurel-leaf types, also represent an older late palaeolithic culture. His view is that we have here to deal with a localized evolution of a retarded Mousterian type, under the influence of later palaeolithic culture, and consequently—for of course an immediate connexion is out of the question—with an apparent parallel with the Solutrean culture of Europe. He takes the opportunity of inquiring into the cause of this parallel development, but is unable to provide an explanation. I believe that I found the solution of this problem some time ago³; my opinion is that in all cases where there is evidence of the laurel-leaf type of point, there is a fusion of the two opposing streams of stone-industries, namely those producing flakes and cores respectively, of which the first employs chiefly single-sided flaking, the second double-sided. It is a blot on the penetration of investigators into the earliest cultural history of man that they wrongly considered these two basic forms of stone-working to occur not only in the older palaeolithic period, but also in the later. In the laurel-leaf points the flake-technique of the one is constantly combined with the double-sided working of the other form of stone-flaking, and in this they are clearly recognizable as hybrid products. Since in the Congo and Uganda rich finds of an entirely core-working industry are in evidence (belonging to the end of the later palaeolithic period), it is easily possible for their influence to have extended to South Africa.

Burkitt proceeds to discuss the Wilton, Smithfield, and kitchen-midden or 'Strand-looper' cultures; all three are quite clearly very ancient and may well go back to the end of the later palaeolithic period (the so-called mesolithic); but on the other hand they obviously lasted into the recent historical period. This is very apparent from Burkitt's investigations. He would like to regard the kitchen-midden culture, which shows close

² *The prehistoric period in South Africa* (London, 1912).

³ *Die Tumbakultur am unteren Kongo* (*Anthropos*, 1925, xx, 516).

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kinship with the Wilton culture, as an independent type. But as far as one can assume from the published accounts I conjecture that it is more likely to represent a decadent Wilton culture, though in their earlier stages, of which too little is known, the two may have been identical. On its own side, the Wilton culture shows so close a connexion with the late Capsian period of North Africa that there can be no doubt of its descent from this. It is remarkable that Burkitt does not venture to state this, for he must have observed it. Since the Wilton culture is the industry of the Bushmen, it is accordingly demonstrable that the Bushmen are connected with the late Capsian peoples—and there is nothing surprising in this if we remember for example that in the late Capsian kitchen-middens of Portugal only skeletons of a pygmy type have been found. Burkitt's circumstantial account of the South African rock-paintings appears in striking agreement with this. For it cannot be doubted that these, in their early stages, are closely connected with the east Spanish art group; in their later development localized decadence is obvious. Something of an enigma is provided by the Smithfield culture, which has its home in the Orange Free State. Burkitt rightly views it as contemporary with the Wilton culture, for the distribution of one excludes the other. He takes it to be a Mousterian survival, though naturally he is not positive, for he has not failed to observe its relationship with the neolithic period in Egypt.

In a brief résumé such as this one cannot possibly examine more closely the writer's invaluable researches into the ages and groups of South African rock-paintings and engravings; it is to be noted that he is the first to make adequate observations of the stratification of the series of pictures. Enough that we have here *the* book that science has needed. For the first time the prehistory of South Africa is comprehensively viewed, with the methods and vision that we have been accustomed to expect for that of Europe. There are also many gentle hints to South African students. We hope that the book is the precursor of a new and fruitful period of inquiry into African prehistory.

OSWALD MENGHIN.

THE PLACE-NAMES OF THE NORTH RIDING OF YORKSHIRE. *By* A. H. SMITH. *English Place-Name Society*. Volume v. *General Editors*: A. MAWER and F. M. STENTON. *Cambridge: at the University Press*. 1928. *pp.* xlvi, 352 and *map.* 20s.

Dr Smith's book is characterized by the same excellent qualities as its predecessors, the monographs on Buckinghamshire, Bedfordshire and Huntingdon, and Worcester-shire. A vast number of early forms are adduced, which in this case appear to have been collected by the author himself, a very laborious and time-absorbing task involving great care and attention, not least where identification is concerned. The forms have been collected not only from printed but also from numerous manuscript sources. Topographical features are duly considered, and the local pronunciation of many names has been ascertained.

The book claims a special interest as it is the first publication of the English Place-Name Society that deals with a county where there are numerous Scandinavian settlements. A large percentage of the names, especially such as denote small homesteads, are of Scandinavian origin. The most usual terminals are *-by* (about 150) and *-thorpe* (about 36), often with Scandinavian personal names for their first element (Ainderby Aislaby, Brandsby, Grimsby, Ormesby, Mowthorpe, Kettlethorpe, Ugthorpe, etc.) *Thwait*, *lund*, *beck*, and *dale* are also very well represented. The prefix is Scandinavian

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in about one-fifth (44) of the names in *-ton*. Uppsala (Sweden) has an exact equivalent in the township of Upsall.

When the place-names contain well-known personal names or topographical elements the author hardly ever fails in establishing their true meaning. He also shows great ingenuity in unravelling many of the obscure names; which, however, are far less numerous here than in the southern parts of England. Dr Smith has had some valuable assistance from Dr H. Lindquist, the Swedish expert on Scandinavian names in England, and in particular from Professor Ekwall, who has contributed numerous solutions of difficult names. To my mind Ekwall is, however, apt to suggest etymologies which are not supported by any analogies and for this reason very hypothetical (cf. Ruston 100, Hackness 112, Skutterskelfe 175, Tripsdale 69, Cotescue 255). It seems to me a good policy to avoid as far as possible topographical nonce-words; in other words we should not try and account for what is unaccountable with the given premises. Speaking of the unaccountable I notice that Dr Smith shares the editor's predilection for postulating doubtful personal names when no other explanation of a place-name has offered itself. To this category belong some of the personal names with one star, in the list on pages 321-2 (*Fin*, *Morta*, *Picer*, *Strēon*, to mention no others), and practically all those which are marked with two stars. The latter group is correctly defined (*ib.*) as names 'for which no such (*i.e.* corroborative) evidence can be found', a very good definition indeed. In my earlier works I have also sinned in this respect, but I am now trying to mend my ways. Professor Skeat, with all his excellent qualities, was the originator of this evil (which was also much abetted by W. H. Stevenson's erroneous but often repeated assertion that a common name could not take the *s-* genitive in a place-name compound). When this malignant form of *onomatopoeia* has been cured more definite results will be obtained as to the meaning of many names. On page 261 a number of medieval personal names are paraded ending in *-us* (*a*) some of which look like latinized forms. Anyhow a suffix *-us* is utterly inconceivable, as there are not even any safe instances of English personal names with either *s-* or *r-* suffixes (cf. my papers in *Finnur Jonson Cel.*, and in ZONF, IV, p. 295). The *t-* suffix (Sompting, Suss. etc.) is also a mere fiction, as will be shown in a forthcoming paper in ZONF, V. The volumes of the English Place-Name Society contain so many excellent things that the editors can very well afford the luxury of some restraint in attempts at explaining names to whose meaning there is no safe clue. In the publications of the Swedish Royal Place-Name Commission, directed by experts of no mean capacity, any number of place-names are left without an etymological explanation.

Consideration of space forbids a detailed discussion of etymological questions. I will confine myself to a few cases where the etymology suggested is not borne out by the evidence of the early forms.

The consistent occurrence of *ar-* in later spellings prove the DB form (*H*)*erleuestorp* for Allertorpe Hall (p. 225) to be deceptive. I interpret the name as OE *Earnleahþorp*. (Such triple compounds are Hindlethwaite p. 254, and Wensleydale, p. 246).

Malton (p. 43) cannot very well contain OE *maeðel*, speech. The 12th cent. form *Madaltune* for Melton on the Hill (YWR) otherwise *Medeltone*, *Middeltun*, *Methylton*, is evidently an A-FR spelling with pretonic *a* for *e* (very usual in early records). I take the prefix in Malton to be either OE *mael*—'a cross' (for the phonology, cf. Startforth, p. 304, 'the street-ford', with numerous early spellings with *a*) or, which is even more probable, w *moel*, 'a hill'. Eae Keltic *ē* is usually rendered with *e* in OE but *æ* occurs occasionally, as in *Maelanbeorh*, ME *Malle-*, OE *penceat* (Zachrisson, *Romans*, 50ff) and

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Malvern (EPNS, IV, 210). Malton is situated on a hill where there is also a Roman fort.* *Meuton*, *Mealton* and *Miauton* are A-FR spellings of Melton (cf. Zachrisson, *Anglo-Norman Influence*, p. 151, and *Beause, Biause* 1227, 1228, CH. R.I. for Bexhill, Sussex). No safe etymological conclusions can be drawn from *Maalton* in Symeon of Durham, the early medieval chronicles being notorious for their erratic spellings of place-names and personal names. The same document has *Theostcota* for Tocketts (probably for *Tofescotum*, Scand. *Tofi* with the English genitive).

Dr Smith's identification (p. 250) of the first element in Jervaulx (*Jorevall*, *Gereuall*) with the OE river-name *Earp* is phonetically inadmissible. Equally improbable is Ekwall's recent interpretation of *Earp* as *Ear p'* = *Ear wæte* for *Eor wæter* (*River-Names*, p. 428). For an explanation of Ure, Jervaulx and *Earp*, see my paper in MLR, vol. 21. I may add that *Earp* is hardly identical with OE *eorp*, 'dark', but with the G river-names Erpe, Arfe, Arpe (Förstemann; Witte, 144), which are either Celtic or contain OG *arp*, 'dark'. Ekwall (*op. cit.*) follows Bradley in deriving *Ior* from OE *Eor* (Rom.-Br. *Isurium*, the old name for Aldborough), but fails to adduce any parallels to a development of *Eor* to *Yor* and *Yer* instead of the normal *Er*, whereas both these forms (ME *Ye(ve)r*, ON *Jor*) are easily accounted for if we take the base to be OE *Eofer*, a back-formation from *Eoferwic*. The parallelism *Yerk* : *Jorvik* and *Gerevall* : *Jorevall* is particularly instructive. Contrary to what is maintained by Ekwall, the Ouse is called Ure at an early date by both Camden and Leland. It would be interesting to know what parallels Ekwall can adduce to Scand. *jo* for OE *eo*, apart from *Jorvik* for *Eoferwic*, which is a case of either combinative Scand. sound-development or of a Scand. name-element having been substituted for an English one, as in *Iat-* for *Ead-*. In the East and North Riding there are at least three places containing OE *eofer* (Everley, Yearsley, Everingham), which never exhibit *Yover-* in the early spellings (only *Ever-* and *Yever-*). Ekwall's explanation of the name involves no less than three conjectures of which two (OE *Earp* = †*Eor wæter*, and ME *Eor-* *Jor*) are improbable.

In the Introduction Dr Smith draws many valuable and instructive conclusions from the place-name material. He comments upon the scarcity of British place-names, which he thinks were displaced by the twofold settlements of Danes and Norwegians. It is a fact, however, that British place-names are scarce in all those parts of England which were settled at an early date. The reason for this is that the remaining native population was rapidly absorbed and amalgamated with their English conquerors (cf. Zachrisson, *Romans*, 63ff). In Lancashire and in the West Riding, which were conquered at a later date, British place-names are naturally much more common.

Dr Smith follows E. Thurlow Leeds in assuming that the Anglian settlements in the North Riding date from about the year 500. Against Ekwall (Place-names in *-ing*, p. 115) he correctly remarks that the existence of names in *-ing* and *-ingham* should not be rigorously interpreted in Yorkshire as proving settlements before the year 600. In the North Riding they are scattered all over the country. They are also found in the western parts, which were certainly settled later than the central and eastern parts. This bears out my conclusion (*Engl. Stud.*, 62, p. 83) that these names are of little value for minute chronological date. That the burial grounds at Saltburn and Robin Hood's Bay represent a separate Anglian settlement is possible, but not very likely.

With our present knowledge the evidence of personal names must also be used with

* See Dr Kirk's account of Roman Malton, *ANTIQUITY*, 11, 69.

† On Walton, etc., and Scotton, see Zachrisson, *Romans*, 41, and ZONF, II, 143.

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great caution for chronological purposes. Nearly all the 'old personal names' mentioned by Smith (*Streon, Hofa, Eaden*, etc., p. XIX) are extremely doubtful.

The actual evidence for early place-names being situated on Watling Street is somewhat scanty. Anyhow, Kiplin, Barningham, and Thornborough are not situated *on* Watling Street.

A very interesting and difficult problem is the distribution of certain place-name types in the East and North Riding as compared with the West Riding and Durham and Northumberland. This problem is also dealt with by Mawer in a very valuable paper, *Yorkshire History* (Leeds, 1924). The facts are as follows. The suffix *-ham* is rare in the whole of Yorkshire. The element *worth* is common in the south-east of the West Riding and in Durham, but is found only once in the East and North Riding, respectively. *Field*, *land* and *ley* are rare as place-name suffixes in the East and North Riding but common in the West Riding and in Durham. It has been suggested that this state of things, especially the scarcity of *worth* in the East and North Riding, is due to the displacement of Old English names with Scandinavian ones. We know for instance that *Norþweorpig* was displaced by Derby, and *Streones heal* by Whitby. I am not convinced this is the right explanation. In the strongly Scandinavianized districts of Lincolnshire *-ham* is quite common, and *-worth* is fairly well represented. Moreover the majority of old parish names in the North Riding have English names. I believe that the state of nomenclature we have just discussed was characteristic of the earliest Anglian settlements north of the Humber, which comprised only the East Riding and the North Riding. At an early date, this district formed a geographical unit bounded by fen-lands and large wooded districts. To what extent the problem is connected with the settlement of the West Riding and Bernicia, which to judge by archaeological evidence (Leeds) certainly took place considerably later is a question which cannot yet be answered. In the West Riding at any rate we have to count with considerable Mercian settlements. The most usual English name-element in the North Riding is *-tun*, which, according to Dr Smith's calculations, occurs in no less than 250 names, of which only one-fifth part are distinctly Scandinavian. The peculiarities of the local distribution of names are illustrated by the fact that *ley* is common in the forest area round Hackness and Wensleydale, whereas no such names are known from Bulmer (the Forest of Galtres).

The Scandinavian settlements in the North Riding are discussed in detail with numerous apt and interesting illustrations. Concerning the distribution of Scandinavian and Norwegian settlers Dr Smith is of the opinion that the Danish settlement (c. 876) was confined to the fertile central and southern parts of the North Riding, whereas the Norwegians (from about 900) settled chiefly in Ryedale, Whitby Strand, Cleveland and Teesdale, and in Richmondshire. The Norwegians tended to avoid the districts occupied previously by the Danes. The majority of Norwegians came over the Pennines from Cumberland, although there may have been an independent settlement from across the North Sea in the north-east.

In a paper in *Revue Celtique* (XLIV, 43) Dr Smith has given a detailed account of such names as point to Irish-Norwegian settlements in Yorkshire. They are very numerous in the western parts of the North Riding, but several instances also occur in the West and East Riding.* Dr Smith may be quite right about the *main* features of the Norwegian settlement, but according to my view he is inclined to understate the Danish settlements,

* Hillgrim (WR), Hillbraith, Miregrein, Sawcock (NR) are not looked upon as inversion-compounds by Ekwall (*Studies till Atelkock*, p. 218).

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which seem to have extended all over the country, although it was greatest in the central and southern parts. Place-names in *-thorpe* are evidence of Danish settlements, probably also place-names in *-by*, when they occur together with *thorpe*-names. There are three names containing *thorpe* in Hang East, and one such name in Gilling West.

Things are not different in Langbargh East, with four *thorpe*-names and numerous *by*-names (among those Danby). Distinct Norwegian names in Langbargh East and Whitby Strand are mainly confined to minor places of little importance. The Norwegian settlements were very considerable in the west of the North Riding, where vast tracts of country had not been occupied by the Angles and the Danes. In other parts, especially in the east, they were a mere layer superimposed on the already existing Anglian and Danish settlement. In support of this it may be pointed out that not only Yorkshire but also Cheshire was included in the Danelaw and that there were considerable Danish settlements as far west as Lancashire.

Taken all round, Dr Smith's book is a very valuable contribution to our knowledge of English place-names. The author has shown sound judgment, considerable skill as an etymologist, and a vast working knowledge in all departments of the English place-name study.

R. E. ZACHRISSON.

THE PASSING OF THE FRISIANS: anthropography of Terpia. By DR D. J. H. NYESSEN. *The Hague, Martinus Nijhoff*. 1927. pp. 296 and 49 *illus*.

The author of this work has paid us the compliment of writing in English, but, alas, he has failed to consult any literary Englishman, with the result that it is often extremely difficult to see what he means. Imperfect English is all very well on a notice in a hotel but it becomes wearisome in a scientific book. The first 99 pages are devoted to a general survey of Frisians and of the literature on their anthropology. The survey is very critical and does not altogether do justice to the previous writers on whose foundations after all modern anthropology has been built. Then there follows an analysis of the material on which any knowledge of the racial history of the Frisians must be based. It is very small, apart from measurements on the living, under 500 skulls, but the physical anthropologist must often be content with a little material. The author has pooled his males and females together in some of his tables, although in more than one place he draws attention to the importance of distinguishing between the sexes. This is particularly unfortunate as his tables are otherwise unusually well arranged. A careful reading however of this section of the book makes one wonder whether the game is worth the candle. There are endless tables of every possible measurement, there are comparisons of the Frisians with most peoples under heaven, there is evidence of an infinite capacity for attention to detail. At the end of it all not only is the professional anthropologist lost in this sea of detail, but the archaeologist interested in the ethnological problems, if he reads as far without yawning, may well wonder what it is all about. Fortunately the author at the end of his chapter on conclusions tells us (the italics are his not mine):—*The difference between the present-day inhabitants of the Western and Eastern provinces, and also the brachyzation of the former, may in a great measure be explained by the contact that has existed so long between the pure Nordic population of the Holocene, and the more mixed inhabitants (? of) the Pleistocene*. We read further 'The brachyzation is not phaenogenetic, but idiogenetic, and the result of the intrusion of allochthonous brachyranics'. It is my pleasure and privilege to know quite a number of archaeologists and I should, I fear, almost certainly run the risk of losing their friendship if I

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recommended that they should read matter of this type. It is a great pity; the author seems to have done a useful piece of work, but his method of presentation is so unsatisfactory as to detract overwhelmingly from its value. If only he had said what he had to say, had got an English friend to read it over, and finally had put his tables into an appendix we might have had a really useful book. In contrast to the muddle of the text the diagrams are extremely clear and the illustrations excellently reproduced, although all the skulls do not appear to be oriented on the same plane. L. H. DUDLEY BUXTON.

THE PALACE OF MINOS AT KNOSSOS. By SIR ARTHUR EVANS. Vol. II, parts 1 and 2. *Macmillan*. 1928. pp. xxii, xiv, 844. *Coloured plates* viii-xiv, *supplementary plates* xii-xxxi, *plans* A-C, and 559 *figs.* 147s.

Sir Arthur Evans' work in Crete has deservedly won a world-wide reputation. He first showed by patient research that the prehistoric inhabitants of Crete and Greece had developed a system of writing, a pre-Phoenician script. Then by excavations at Knossos he proved, as Schliemann long ago had suspected, that the Bronze Age civilization of the Aegean had its beginning and developed in the main from Crete and so demonstrated at once the amazing richness and high standard attained by the Minoan culture. Nor is this all, for by coordinating in a series of learned discussions the results obtained from the various excavations in Crete carried out by scholars of half a dozen nations he has shown clearly that Crete owed much to Egyptian influence if not to actual Egyptian colonization in the early Minoan period, soon after the beginning of the Bronze Age. The general results of the discoveries in Crete are of such high importance that they should rivet the attention not only of classical archaeologists, but of all who study the beginning of European civilization. Thus the appearance of the second volume of Sir Arthur Evans' monumental work dealing with the principal characteristics and the general evolution of the Minoan civilization in Crete and of its reciprocal contacts overseas in Egypt, Asia Minor, the Greek mainland, and the west as viewed from the Daedalic Palace of Minos at Knossos is a fact which cannot but excite profound interest.

Six years have elapsed since the publication of the first volume, in which Sir Arthur carried the story of the Minoan civilization from the Neolithic Age down to the close of the Middle Bronze Age at the end of what is called archaeologically Middle Minoan III. The second volume does not continue the story immediately, but is divided into two parts. The first begins by detailing new information obtained by recent excavations of about the Neolithic and Early Minoan periods, more especially of Egyptian relationships and colonization. In pursuit of this a great road running across the island from Knossos to a port on the Libyan Sea is traced. In this context subsidiary discoveries made outside the palace, such as the 'Caravanserai' and the stepped portico are discussed and illustrated. Next follow the amber route and Iberic, Britannic, and Maltese relations and the connexion with the Egypt of the Middle Kingdom. This leads naturally to the harbour town of Knossos, and the first part closes with a discussion and description of earthquakes, for the ruin of Knossos towards the end of the Middle Bronze Age is probably to be attributed to such a convulsion of nature. The second part deals with the important houses that lie close to the palace and the area of the town of Knossos in general. It then proceeds to treat in detail the porches and entrance corridors of the palace, especially in the west section which was restored after the great earthquake.

This brief conspectus cannot give any true idea of the scope and contents of the book or of the great number of different subjects dealt with in these seven hundred odd pages. The subtitle, 'A comparative account of the successive stages of the early Cretan civilization

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as illustrated by the discoveries at Knossos' is after all its best description. It is in reality not so much a detailed scientific account of the results of the excavation of the Palace of Minos at Knossos as a comparative account of some phases of the Minoan civilization as revealed by the excavations of the palace. This comparative material, especially that from the parallels from Egypt and Libya, and from other sites in Crete where Mallia and Nirou Khani in particular are discussed, is extremely valuable and in the author's happiest vein. Particularly noticeable is the elucidation of the frescoes where subjects so diverse as hydrostatics and botany are made to render full service to a most important commentary. Naturally enough, even in a volume of this size, many aspects of Knossos have to be left untouched, so complex are the ruins and so numerous are the fragments of fresco, pottery, ivory, bronze, and other materials. The book thus cannot be compared with the elaborate German publications of excavations such as Olympia, Pergamon, or Miletus, or the detailed French publication of Delos. The author's strength lies in the commentary with which he illuminates things he has discovered, and here his wide archaeological knowledge of many lands and close observance of points of detail is well distinguished. There are, however, various points which it is easy to criticize, and though criticism is inevitable it should not distract attention from the brilliant services which the author has rendered by his excavations. The very character of the commentary, especially in regard to the tracing of the road to the south, breaks the chronological scheme adhered to in the first volume. A large number of the illustrations give no indication of the size of the objects they represent, which is especially needed in the comparative illustrations of vases as in fig. 250 on p. 429. There are practically no sections to elucidate the complicated strata of the site. There should be a series of sections drawn in various directions across the *tell* of the palace. Individual areas, as for instance the South Porch where the stratification is important or is obscured by modern rebuilding, should be described with the aid of complete sections. The rebuilding also makes the provision of stone-for-stone plans an urgent necessity, in accordance with modern scientific archaeological practice. Some modern archaeologists would also object to the 'wager system' of excavation as unscientific. Some blocks, e.g. fig. 43, are not up to standard; the architectural restoration in fig. 75 contains a serious error and fig. 82 is rather too conjectural. The remarks about the absence of central hearths in Middle Helladic houses on p. 21 are contradicted by the evidence from Eutresis and Lianokladi and in the discussion on sling bullets (p. 345) a reference to the stone and terracotta examples so common in prehistoric Thessaly should have been given. And it must be confessed the bull's-head rhyton from Pontus (p. 659) seems more likely to date from the sixth than from the sixteenth century.

We hope that the learned author will soon issue his remaining volumes and with them the index which is such a crying need to the 1565 pages of the first two volumes. He has given so much here that he tantalizes his readers who greedily ask for more and more.

A. J. B. WACE.

ROYAL COMMISSION ON THE ANCIENT AND HISTORICAL MONUMENTS
OF SCOTLAND: the Outer Hebrides, Skye and the small Isles. *H.M. Stationery Office*. 1928. pp. lvi, 230. 32s 6d.

This volume is a worthy addition to the literature of State archaeology. Its compilation has involved more venturesome journeyings than normally fall to the lot of the British archaeologist, for not only did its authors take advantage of a chance visit by Captain Patrick Grant to St. Kilda but they themselves, amongst other exploits,

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voyaged to the remote island of North Rona. 'Here and at the Flannan Isles a landing cannot be guaranteed even in comparatively fine weather. The conditions happened to be favourable for a brief visit to Rona, but the neighbouring island of Sula Skeir had to be omitted'. Even under suitable weather-conditions in these wild outlands it was not always found possible to overcome difficulties of transport. 'Many island sites . . . could not be reached for lack of a boat, and their precise character was therefore left undetermined'. Nevertheless Mr Graham Callander and Mr J. M. Corrie, with certain of the Commissioners, have succeeded in bringing together a substantial and adequately illustrated volume, and have sufficiently determined at least the main characters and distribution of the various types of 'monument'. The volume has been well produced by the Stationery Office, but is excessively costly.

The distribution of the population of the islands has differed little, save in local detail, from prehistoric times to the present day. It is closely determined by the masterful geology of the islands and by the prevalence of a rigorous Atlantic climate. The able and concise introduction rightly begins with a clear summary of the geological setting; it then proceeds to outline the history of the islands, and subsequently to epitomize the principal groups of their archaeological remains.

The chambered cairns begin the series. They are presumably of the late neolithic period or early Bronze Age, and are either elongated (in which case they occasionally approximate to the 'horned cairns' of Caithness) or circular. Of the circular variety over forty examples are noted, including two which appear to be still intact, with diameters of 80-90 feet and a height of no less than 18-20 feet. Here is an opportunity for Scottish archaeology! The *circular* chambered cairn or barrow (as distinct from the Bronze-Age round-barrow) is only just coming into its own in Britain, and the scientific exploration of two or three intact specimens in the north is badly needed. Amongst other megalithic monuments, pride of place is naturally given to the famous circle of Callanish on Lewis, though several other stone circles are also recorded.

Defensive sites are divided usefully into five categories. The first is that of promontory- or contour-forts defended by dry-stone walls containing galleries or passages. From these are derived the circular towers of 'brochs', which were used during the first few centuries of the present era, perhaps (if the scarcity of associated relics be taken at face-value) rather as occasional refuges than as permanent dwelling-places. The broch of Dun Carloway on Lewis survives to a height of 30 feet. Into a third and fourth class are grouped un-galleried promontory forts of unknown date and a series of rather miscellaneous coastal forts, often of promontory type. The fifth class consists of forts on islands in lochs, generally approached from the mainland by a built causeway. Amongst these are *duns* consisting of a stone wall round the periphery of an island, enclosing a rectangular building probably of medieval or later date.

Whether any of these classes of defensive structure can be ascribed to the Vikings is at least doubtful. The writers of the Introduction observe further that 'we can hardly escape the conclusion that there is no building of stone in the Hebrides that can be definitely attributed to the Norse immigrants'. This is the more surprising since the Norse occupation was an episode of the highest importance in the history of the Western Islands. It lasted for more than four and a half centuries, and has left a palpable witness in the majority of the island place-names. More material relics are hard to find, and it is inferred that the Vikings brought with them their native practice of employing only wood, which has of course long disappeared. A few runes on a stone otherwise of Celtic character are thus the only monument of the Norse régime, unless we include a few

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'small finds', notably the famous sword-hilt from a Viking burial on Eigg. This hilt and a number of elaborate tortoise-brooches, etc., just suffice to confirm Dr Brøgger's view that the Viking migration to the Southern Isles was that of the wealthy and independent nobility which was squeezed out of Norway by the autocratic ambitions of Harold Fairhair; in contradistinction to the poverty-stricken emigrés—Norway's superfluous failures—who had earlier found a refuge in the nearer Northern Isles (Orkney and Shetland).

Medieval and later buildings are numerous but rarely of intrinsic interest. The Commissioners show a praiseworthy reluctance to overestimate the antiquity of these merely on the grounds of their primitive appearance. The only ecclesiastical structure of distinction is the cruciform 16th-century church at Rodil on Harris, which contains a notable series of tombs enriched with remarkable examples of local carving. The fifteen castles are similarly devoid of special interest, save as appropriate features of the landscape. But the importance of the volume rests not so much upon the attractiveness of any particular monument as upon the collective picture which it presents of a rugged landscape populated—and, everything considered, not inconsiderably populated—by a succession of peoples who all in turn received the impress of their rugged environment and, with the remarkable exception of the Vikings, succeeded, in various ways, in expressing it monumentally.

R. E. M. WHEELER.

LA CITÉ PONTIQUE DE DIONYSOPOLIS. By MONS. TAFRALI. *Paris: Paul Geuthner*. 1928. 40 francs.

Mons. Tafrali's book deals with five sites on the Black Sea coast, examined by him in 1920. He devotes most space to a history and discussion of the topography of the ancient Dionysopolis, whose site he identifies with the modern Baltchik. The topographical section is, however, a matter of detailed rather than of general importance. More interesting is the emphasis laid on the close commercial and spiritual relationships which existed between some of these cities of the Hellespont and Egypt. Thus Dionysus who was, as the name implies, the patron deity of the city, is identified with Osiris.

The remainder of the book, apart from a section devoted to the publication of inscriptions from Dionysopolis and Cavarna, deals somewhat summarily with four villages close to Baltchik, on the coast and near the present Bulgaro-Roumanian frontier. Of these Tekke is an interesting monument of the Moslem period. Near by, at Ecrene, stood a castle, now much ruined. Tafrali remains uncertain as to whether it was of Byzantine or Genoese origin, but the latter seems more probable. Cavarna, whence came a number of the inscriptions which are published at the end of the volume, is a Byzantine site of minor importance. More impressive is Kali-Acra, with its fine medieval castle, much ruined even since the days of the traveller Laurens.

Mons. Tafrali's volume is well produced as regards the text, but the numerous illustrations are mostly poor. For a book like this, which is of detailed importance, it would have been better to reduce the number of plates and so also to reduce the price.

D. TALBOT RICE.

INTRODUCTORY HANDBOOK TO THE STYLES OF ENGLISH ARCHITECTURE. By ARTHUR STRATTON. Pt. I. The Middle Ages. *B. T. Batsford*. 1928. pp. 32 and 13 diagrams. 2s 6d.

This little handbook consists, mainly, of much-reduced reproductions of thirteen diagrams, prepared for the use of schools and each showing some phase of English

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medieval architecture. They are all admirable examples of clean and effective draughtsmanship and, by means of plans, details and perspectives, provide useful exemplars for their intended purpose. Accompanying them is a summary account of the evolution of the various styles, which here retain the old nomenclature of Rickman. This account falls somewhat below the standard set by the diagrams; the Saxon chapter is frankly muddled, and errors have crept into the other sections which might well be corrected in another edition. Thus the Confessor's church at Westminster was not copied from Jumièges, as has been recently proved; the view of Conway shows the whole town and not the castle only and the leading examples of Cistercian work belong to the 12th rather than the 13th century. A short glossary of terms is printed on the cover.

THE R.A.C. COUNTY ROAD MAPS AND GAZETTEERS. *Cheltenham* : Ed. J. Burrow. 1s 6d each.

This series professes to note 'every object of interest at a glance and how to get there', and it admirably fulfills its promises. Good printing, a pleasing format, maps which depict all that is relevant and omit all that is not, and a well written text combine to make each volume a cheap necessity for all who use their cars for pleasure. Unlike most guide books, they are written in what may be termed a gentlemanly style: as if the many items of interest were recalled over a glass of port by a genial friend after a leisurely 'tour' in a chaise and four. The publisher and also the motorists for whom this series is intended are to be congratulated.

R. C. C. CLAY.

ÜBER DIE HERKUNFT DER ETRUSKER. By HANS MÜHLESTEIN. *Berlin* : Frankfurter Verlags-Anstalt. 1929.

This brochure of 80 pages and *Die Kunst der Etrusker* are the work of a young writer whose independence and originality are refreshing, even though these qualities are associated with a somewhat overbearing self-confidence. The author begins with the usual rehearsal of the classical authorities from Herodotos to Dionysios, and declares his firm adherence to the Herodotean tradition. He then springs his surprise, when he states that this tradition though true is inadequate and partial. We are invited to realize that all authors 'from Herodotos to Mommsen, from Hellanikos to Schuchardt, from Dionysios to Pareti' (a row of strange bedfellows!) have erred from one-sidedness. The recognition of this, apparently self-evident, truth, will unquestionably bring the millennium in our studies. And those who remain obdurate will be branded as upholders of *Unilateralitätsdogma*.

It is a quite Rotarian ideal, this sweet union of incompatible opposites, all the various statements as to Pelasgi, with the autochthonous dogma of Dionysios and the Lydian origin as stated by Herodotos. Nevertheless a good many students may be content to remain one-sided if only they can be sure that their side is rightly chosen. Mühlestein cannot sleep until he finds some explanation for the stubbornness of Dionysios, the perpetual recurrence of Pelasgi in the oldest Greek writers, or even the reiterated dogmatism of nineteenth-century historians. Yet a hardhearted reviewer who is little troubled by these familiar phantoms may doubt whether even Mühlestein's formula will effectively exorcise them. Our author feels impelled to postulate not one but three distinct sources for the Etruscan nation. As to two of these many writers are in general agreement with him. Those who accept the Lydian origin of the Etruscan aristocracy freely admit that the yeoman background of the nation was formed by native Italians.

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The innovation which is quite unacceptable is the hypothesis of a third element, consisting of Pelasgi, who are arbitrarily named Rasenna and supposed to be an old Aegean people racially akin to the Tyrsenoi. They are brought to the mouth of the Po some centuries before the Etruscans of Herodotos landed on the west coast, and the gradual spread of their civilization is supposed to have paved the way for the Etruscans. That this theory enables the author to explain the statements of Hellanikos and Hekataios is not a sufficient justification for propounding it. Entirely unsupported by any archaeological evidence it is a flat contradiction of all the results so far obtained by excavation. Not until Mühlestein can produce some archaeological evidence of the existence in central or north-east Italy of a pre-Etruscan civilization of orientalizing character will the theory of a third element in the composition of the Etruscans deserve serious consideration.

D. RANDALL-MACIVER.

ITINERARIA ROMANA. *Edidit* OTTO CUNTZ. Volumen prius, itineraria Antonini Augusti et Burdigalense. *Lipsiae, in aedibus B. G. Teubneri.* 1929. 12 RM.

A new edition of the Roman itineraries has long been wanted. The edition of Wesseling (Amsterdam, 1735) was replaced a hundred years later by that of Parthey and Pinder (1848), which is still the standard text. The magnificent folio of Miller (1916) promised much but performed little, and served only to spread errors. Now at last we have the first half of a really sound new edition, based on careful textual and topographical studies by the editor and Kubitschek, who originally intended to issue it in collaboration. All students of the Roman Empire will welcome its appearance, and it deserves the welcome; for its only fault, so far as I can see, is a somewhat excessive caution in identifying ancient with modern places. In this volume we are given the most important of the itineraries—the Antonine—followed by that curious and delightful document which describes a journey from Bordeaux to Jerusalem, and back to Rome and Milan, in A.D. 333, with notes on the 'sights' of Jerusalem and Palestine generally.

R. G. COLLINGWOOD.

HOW TO OBSERVE IN ARCHAEOLOGY; suggestions for travellers in the Near and Middle East. *London: published by order of the Trustees of the British Museum.* Second edition, 1929. 2s 6d.

This admirable little handbook of 120 pages tells practically everything that one is likely to want to know if one is an intelligent traveller or resident in the East: from what a tortoise-core looks like to the Nabataean alphabet. (We actually met one such recently who had consulted the first edition for both). But it does much more; it is a compendium of absolutely reliable information about the history of the regions dealt with, and it gives, whenever possible, chronological tables. This leads us to make a suggestion; would it not be possible for the British Museum to publish a similar handbook consisting of Chronological Tables only? We know the difficulties, and that the staff is already overworked; but we feel sure that the attempt would be worth an effort, and the sales prodigious. The fact that this handbook, in its first edition, seems (so far as we can estimate from the probabilities of the case) to have had a sale of not less than one a day since it was published in 1920, proves how great is the demand for reliable information. It is also some measure of our indebtedness to the British Museum and to the Archaeological Joint Committee which suggested the publication in the first instance.

Every reader of *ANTIQUITY* should buy this book, whether he is going out East or not.

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ANCIENT SICYON WITH A PROSOPOGRAPHIA SICYONIA. By CHARLES H. SKALET, PH.D. (*Johns Hopkins University Series of Archaeology*, no. 3). Baltimore, *Johns Hopkins Press*; London, *H. Milford*. pp. viii, 224, 17 illus. 13s 6d.

Sicyon was commercially and artistically one of the more important Greek city states, but though it flourished in the age of the tyrants under Adrastus, it never attained any political importance even after its refoundation by Demetrius Poliorcetes. Dr Skalet's monograph is therefore welcome since he has here collected in convenient form practically all the information available about the city from ancient or modern writers. He devotes two chapters to the artists, and another to the cults, and has furnished the whole with a prosopographia, a most useful feature. In his history the weakest part is naturally that dealing with the Heroic and Dorian periods, for here so many points are doubtful or debatable. A fuller discussion of the trade and commerce of Sicyon and of the products of its territory, natural and manufactured, should have been included, and a better and first hand description of the geography of the district would have been a valuable help. If the author had been able to explore the site himself, and to survey both the natural resources of the region and the ancient remains, his fresh account of the topography ancient and modern would have been important. Although Professor Robinson read the proofs on the site and provided several useful photographs the topography lacks a proper general map (that given is a revision of Leake's) and plans of the more important buildings, theatre, bouleuterion, etc. These flaws make the author's compilation less useful from the archaeological point of view than from the historical or literary.

A. J. B. WACE.

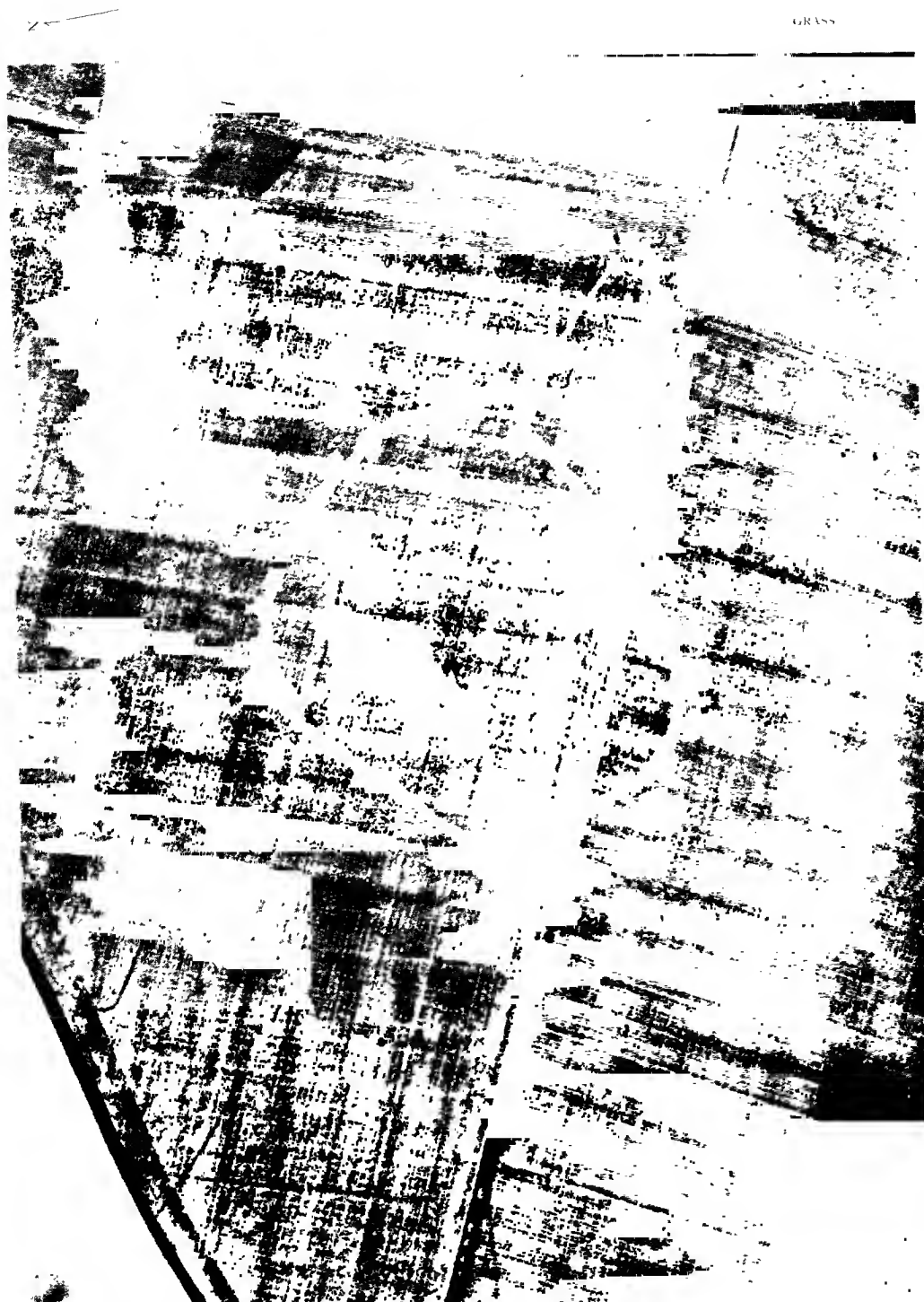
THE CAMBRIDGE ANCIENT HISTORY. Volume of plates, II. Prepared by C. T. SELTMAN, M.A. *Cambridge University Press*. 1928. pp. xii, 120, and 120 plates. 9s.

The plates in this volume are designed to give a pictorial commentary to volumes V and VI of *The Cambridge Ancient History*, which deals mainly with Greece in the 5th and 4th centuries B.C. Under these circumstances the figures illustrating Professor Beazley's chapters on Greek art and the sculptures and vases shown are admirably chosen and well reproduced, though some are on too small a scale or rather woolly. The text to these plates is however too short, being little more than an expanded title. There are a few illustrations of architecture, but among these Greek fortifications should have been better and more fully treated as the two views given do not really illustrate any fundamental principles of this branch of military science.

There are a few plates of late Egyptian objects dealing with the Saïte and Ptolemaic periods, but Persian and other Eastern objects of the same time are lacking. The coin plates are well selected and clearly reproduced with sufficient commentary. Though it is easy to criticize such a book as this, it admirably fulfils the purpose for which it was designed to illustrate the text of the History, especially the chapters on Greek art.

A. J. B. WACE.

PLATE 1



ENCLOSURE NEAR WOODBURY, WILTS. TAKEN BETWEEN 11 AND 12 O'CLOCK, 16 MAY 1929
(RAI, OLD SARUM)

SCALE 0 1 2 3 4 500 F²

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Antiquity

A Quarterly Review of Archæology

VOL. III No. 12

DECEMBER 1929

Editorial Notes

WE have now completed our third year of publication and once more thank our subscribers, especially those who have given us their support from the first number. With this issue is enclosed a renewal form for 1930. We have tried to avoid placing it in the copies sent to those who pay through banks, or who have already paid in advance. The subscription for 1930 is not actually due until next March but the form is enclosed now for mutual convenience; it is a great help for us to know exactly how we stand at the beginning of the year. In the past we have, in the absence of instructions to the contrary, assumed that all subscribers wish to continue receiving *ANTIQUITY*, and in a few cases this has led to misunderstanding which we wish to avoid in the future.



We would here draw attention to a feature of *ANTIQUITY* of which some of our readers, particularly those who have only recently become such, may not be aware. *ANTIQUITY* has no publisher, in the generally accepted sense of the word. All the arrangements for its distribution are directly controlled by the Editors, who are thus brought into personal touch with every individual subscriber. We value this personal element very highly, and we have no intention of relinquishing it; though it necessarily involves a large amount of additional work. We know that many of our subscribers also appreciate this relationship, and feel that not only are they getting—to put it crudely—good value for their money, but also that they are supporting a unique venture. We know this from the letters we receive after each issue appears.

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These are in themselves a sufficient reward and encouragement, and they help us because they tell us what our readers like best. They also enable us to correct those slips which must occur when a quarterly review is managed by two people in their spare time. For these reasons we adhere to the method of direct publication, which we regard as more human and less mechanical than the usual one. ANTIQUITY could not be run without the friendly cooperation of readers and contributors, and of printers and editors. May we add that our labours would be immeasurably lightened if the former would remember the old saying, *Bis dat qui cito dat*—whether it be manuscripts, illustrations, proofs or SUBSCRIPTIONS !



We make no apology for giving these facts publicity. We think they should be known by our readers as well as by ourselves. Of course we value very much the publicity of reviews, such as the leading article which *The Times* devoted to our last number ; but there is a danger even in the success which, as such reviews prove, ANTIQUITY has achieved. It has already come to be regarded as an established concern, in little or no need of fresh subscribers. While we agree with the former opinion, we dissent from the latter. To conduct it as it should be conducted—with plenty of illustrations and plans—is an expensive business ; and we need the support of every single person who is interested in archaeology. The more subscribers, the more illustrations ! That this is no empty promise may be seen by comparing the number of plates in volumes 1, 2 and 3. The first had 62, the second had 88 and the one now completed has 131 plates. As our circulation has increased, so has the number of our illustrations ; and, as every archaeologist knows, these and plans are absolutely essential to a properly conducted review of this kind.



We could achieve the maximum of efficiency in this respect if only one half of our readers would each obtain for us one new subscriber for 1930 ; or would even give a year's subscription to one of their friends as a Christmas present. We should also be glad to have the names and addresses of interested persons to whom we could send leaflets. We shall shortly be sending out a large number of circulars, but it is difficult to get hold of the right people. In passing we would point out that, in circularizing by post on a large scale from published lists and so forth, it is inevitable that some of our present subscribers may

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receive this leaflet, and we ask those to ignore it or (better) to send it to a friend. Many we know have already most generously helped us in this way ; we thank them for their help, and assure them that the returns from such methods have always proved more fruitful than those from any other.



Finally, we feel confident that the present number will prove as popular as the last, which to judge from the letters we have received, and the reviews, seems to have pleased everyone. Wiltshire (whose supremacy seemed for a moment to be challenged by Norfolk) is again to the fore, with two of the most remarkable air-photographs ever taken. Africa is represented by several articles. Miss Caton-Thompson's (based on her lecture before the British Association at Johannesburg) is the first illustrated account of her excavations at Zimbabwe. Mr Guy Brunton gives a general summary of his work in Upper Egypt, to which we wish to draw attention. Mr and Mrs Brunton have devoted their time and resources to these most important excavations for several years past. The full extent of this is known only to a few ; and we feel that it deserves wider recognition and support on the part of the public. The appeal inserted in the present number will provide sympathizers with an easy means of expressing their sympathy in a practical form. Dr Oscar Reuther is opening up a new world in Iraq, and we deeply appreciate his courtesy in giving our readers the first account of the results. He hopes to resume work at Ctesiphon in 1930-31. Group-Captain Rees (who knows the Syrian desert intimately from two points of view) provides abundant materials for the study of these mysterious walls and enclosures which still baffle us.



' Out of evil cometh good '—two years ago a Royal Commission was appointed to report on National Museums and Galleries, with a view to economy and administrative procedure. The shadow of the axe fell upon our National Collections. That shadow has been replaced by a gleam of hope in the two Reports which have so far been issued. The first report, dealing with structural requirements, has already been reviewed in our columns. The second report concerns itself with congestion of specimens, and a closer touch with modern life. Once more the question of economy fades away into the distance before the pressing needs of the public and students for whom these museums and galleries were intended.

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On the subject of congestion it can be truly said that the past policy of the nation in its Museums and Galleries has been that of the dog in the manger. Not once but many times has this country benefited by loan collections of pictures and specimens from European capitals, without any reciprocity on our side. This must be altered—our pictures must be free to go to Holland, as the Dutch pictures were free to come to us. There must be no splendid isolation in this matter. The principle might well apply to the Provincial Galleries and Museums which can guarantee to provide a suitable temporary home for objects from the national storehouses. The masses of inert matter in the cellars of our National Collections must be called into life and usefulness elsewhere on loan. The talent must no longer be hidden in a napkin.



The crucial demand, however, is to come into touch with modern life. This assumes two distinct functions ; the provision of students' sections, and the wide comprehensive appeal to the layman in art and archaeology—whose path to knowledge must be made easy by lectures, evening opening, isolation of fine specimens and abolition of fees. The general aim must be that of ' Archaeology without Tears ', and the most complete liaison between the specimen and the visitor. Descriptive labels are good, the spoken word is better ; both are needed. This will cost money—and that money must be forthcoming.



Finally, and very rightly, the Report advocates a Museum of Ethnography, and Folk Museums. It is amazing that the British Empire has no central museum in which to display the ethnological specimens which belong to the many and varied races it embraces. The lack of such a museum is a defect in the Empire which calls for immediate remedy. In the sphere of Folk Museums, Great Britain has so far done nothing, while other countries have been steadily engaged on the preservation of their folk-life. What little has been done in this direction in England has been undertaken through the zeal of curators of struggling provincial museums.

To sum up, the difficulty is not so much one of collections, it is the cost of administration and maintenance. Given security for these two items the good work can go forward, and the public will be catered for, both student and layman. And if the Nation leads, perhaps Local Authorities will follow.

The Transjordan Desert

by GROUP-CAPTAIN L. W. B. REES, V.C.

EAST of Amman in Transjordan lies the basalt area called the Harrat er Radjil (the centre is approximately 37 deg. 30 mins. east and 32 deg. 30 mins. north), and this area is archaeologically most interesting. (Fig. 1). The country consists mostly of basalt broken up into blocks of various sizes, with mud-flats scattered in all the hollows. The mud-flats are fed by small watercourses which are generally deeply eroded, and although they are usually dry, water flows in them after heavy rain. Pools of water sometimes lie in the watercourses and on the mud-flats till the commencement of the summer months. Here and there rise small crater-hills, a few hundred feet high, of volcanic formation; and here and there the larger watercourses have eroded the country, leaving many small hills which, when seen from afar, are not unlike the crater-hills.

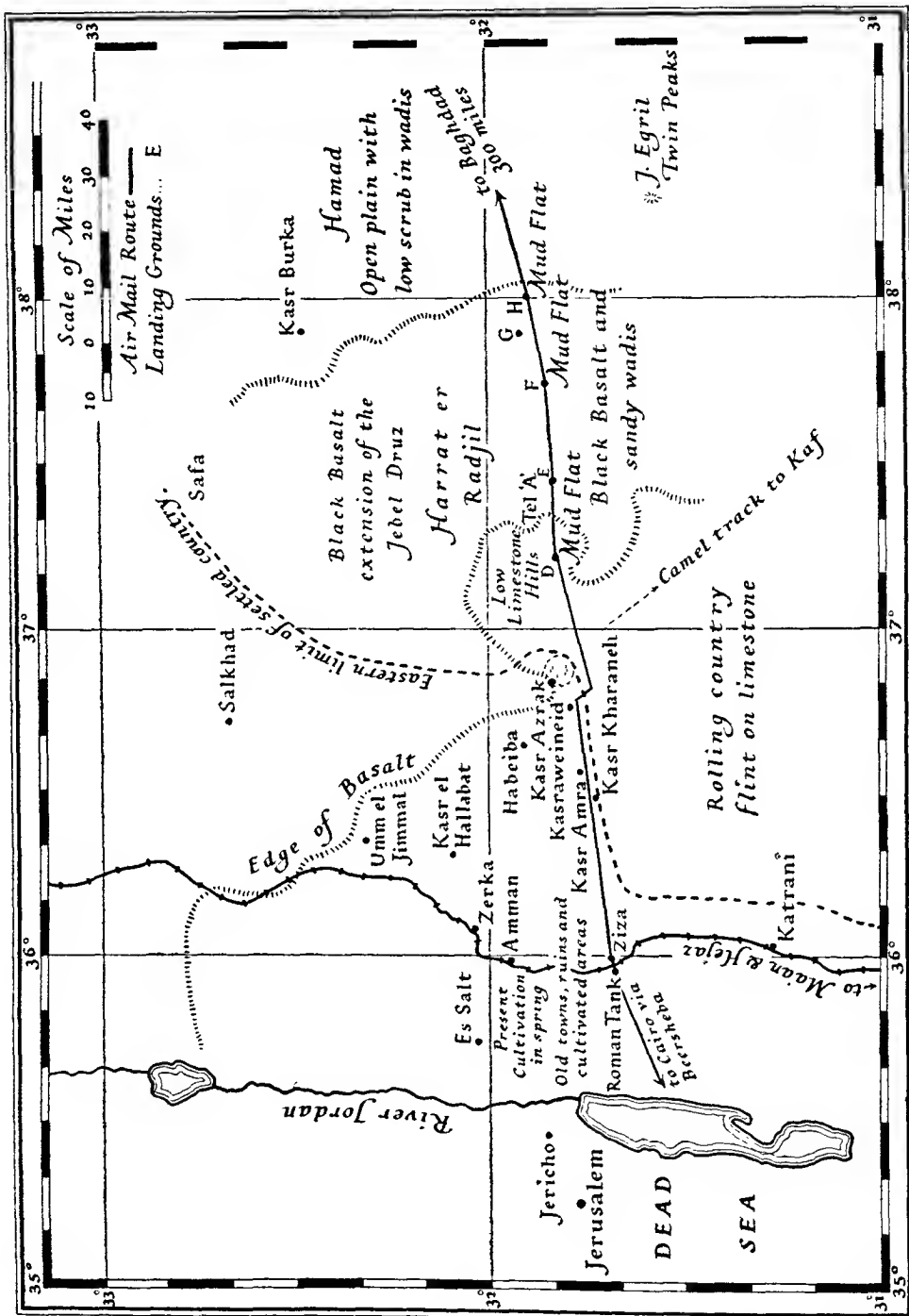
Except for a short period in the spring the whole of this country looks like a dead fire—nothing but cold ashes; but it is probable that it supported a large permanent population in some past period or periods. At least two very distinct periods can easily be distinguished (especially from the air). They are the Safaitic and the 'kite' periods. The Safaitic embraces the period of the building of 'red' villages dating to the beginning of our era, whilst the 'kite' period is very much older, and possibly extended over a very long time.

The descriptions that follow are from the point of view of an aeroplane pilot who claims no knowledge of archaeology, but who has had a certain experience in observing from the air.

SAFAITIC PERIOD

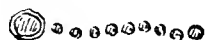
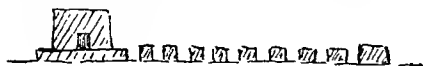
A basalt boulder that was turned over at the beginning of our era has, apparently, weathered to a red colour at the present day. This colour is the impression one gets from the air, and if it has once been seen from the air it can easily be identified on the ground. It is worth noting that similar stones used at the beginning of the Moslem period are very much lighter in colour, and are brownish rather than red.

FIGURE 1



THE TRANSJORDAN DESERT

One comes across the 'red' villages all over the basalt area, sometimes in groups, but more often singly. The village consists of one or more cairn-groups and circles in which cattle could be penned. The cairn-groups are very distinctive and consist of one main cairn with a tail of smaller ones, numbering sometimes three or four and sometimes even as many as fifty. In almost every case the end cairn is of medium size or a cairn in a circle. The circles at the present day are usually partly broken down, and at the proper time of the year Arab tents can frequently be seen filling up the gap.



Inscriptions and drawings are to be found on or near almost every large cairn. Inscriptions are seldom found near the medium sized cairns. They are never near the small cairns, but there are a number on stones lying about the desert which have (at present) no relation to the cairns. The inscriptions are named after those found in the Safa Depression that lies to the north of the Harrat er Radjil, and they date the cairns as belonging to the Roman period. In few of these villages have flints been found, and those found near them have no connexion with them. The villages give one the impression of having been well cleaned and brushed. They are situated in places near which one would expect to find water. They are usually on the edge of a wadi or on top of a small hill; and the inscriptions are more numerous near those pools and mud-flats which now retain water till well on in the Spring. It would seem that the villages were inhabited till the end of the Roman wet period, and that want of water drove the inhabitants elsewhere. There is enough work put into the building of a village to make one think that it was permanently inhabited. At the present time these ruined villages occur in the middle of the basalt area miles from likely watering places, showing that once water must have been plentiful everywhere.

It is very difficult to decide for what purpose the cairns were erected, whether for instance they were erected to guard the Roman roads. I believe it has been suggested that they were guard-houses, and they certainly do lie in great numbers along the Amman-Baghdad track, the Azrak-Kasr Burka track, along the camel track east from the Roman fort at Zerka (11 miles NE of Amman), and east of Bair Wells. Inscriptions can be found near the Roman road to Akaba at the top of the Wadi

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Ithm, on the main road from Katrani to the Roman camp on the edge of the Wadi Ghara (near the edge of the Wadi Sirhan), and at Petra. Those at Petra are on the Roman pillars and inside the 'monuments' and are therefore comparatively recent. They include many well-known Arabic names and words such as Asad (lion) and Na'am (ostrich). These two words are often found near drawings of the objects.

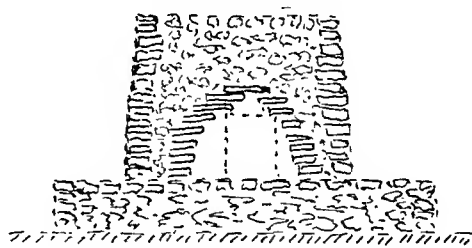
That the cairns were Roman guard-houses is supported by the fact that there is a similar hut, though of a very superior pattern, built of Roman dressed stone, standing beside the Roman road that runs from Kasr Azrak to Salkhad. It is situated a few miles north of the Kasr. This hut is square, and not round as are the cairns.

The large cairns are corbelled huts built on a plinth. (Plate 1). They are all much of the same size and contain a chamber in which one can sit upright. The chamber in plan is perhaps some 8 feet long by 3 or 4 feet broad. The roof is constructed of some six or seven flat stones on which were piled a heap of little stones. There is nothing to show whether they were thatched or turfed to keep out the rain. The smaller cairns are essentially solid, but the large cairn has a proper doorway.

A typical cairn is shown in section. Every cairn examined has had all the small stones thrown off the roof, and at least one of the large roof stones has been lifted.

The use of the tail of cairns is not obvious, but on a small hill south-west of Kasr el Hallabat (15 miles NE of Amman) the large cairn and a part of the tail have been replaced by a Roman dressed stone breastwork wall. It might therefore be that the small cairns were a defence that would allow the guard protection from whichever side the attack came. The guard suddenly attacked in rear could quickly slip round or between the small cairns. This small hill is not according to type as it is covered with flints.

The inscriptions and drawings are typical of those found on or near the cairns and are translated as well as is possible with the aid of the handbook *How to observe in Archaeology* issued by the British Museum. I hope that the translations are fairly correct. (Figs. 2, 3). Lines and dots usually appear in series of seven, well illustrated by the human figure on fig. 2.





מלכא בן חאקא בן אמ חאקאלא
mal'ah ibn ha'khy ibn am ha'khalat.

ליונ בן אקאל
asad ibn akal
Lionel son of Wylie.



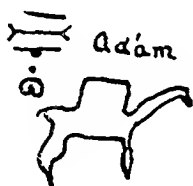
abis ibn Tsarl

אמאלק בן אביס
amalek ibn abis
Prince son of Hardy.

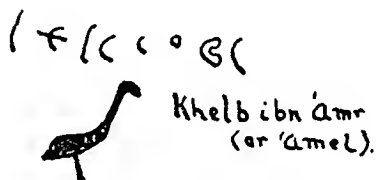


'am ibn Abel

צאד בן אמר (או אמל)
Tsadd ibn 'amr (or 'amel)



אדם
adam



חלב בן אמר
(or 'amel).

אטבא בן אקא בן ארער
atba ibn 'akk ibn ar'er

אבא בן אקא בן ארער
aba ibn 'akk ibn ar'er



אבא בן אקא
aba ibn 'akk

FIG. 2. DRAWINGS AND INSCRIPTIONS IN CAIRNS, TRANSJORDAN

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Ad'am, from whence comes the weird camel (in middle of fig. 2), is the district east of Zerka (15 miles NE of Amman) now used as a practice bombing ground.

The artists have shown in many drawings a sense of humour. One camel with a curly tail had his head beaten out and the remainder turned into a gazelle. The words Abu Vab (fig. 2) have been turned into a cheery little fellow and an animal. One artist, having failed to make his drawing look anything like the original, has in desperation written below: 'These are ostriches'. Although not all camels have curly tails there are a sufficient number so drawn to make one wonder how the mistake arose, because in general the drawings of the animals are very true to life. The camels with the elongated humps are exactly as they appear in the mirage when they are a few hundred yards away from one. All the drawings suffer much in transcription.

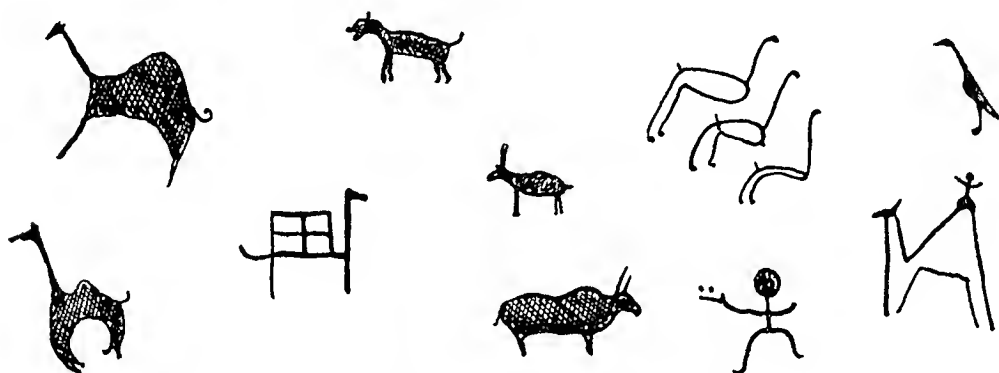


FIG. 3. CAIRN DRAWINGS, TRANSJORDAN

There is a curious difference in the drawings found in the north and the south of Transjordan, but not enough have been examined to say with certainty if the difference is general. The alphabet changes slightly, different letters being occasionally found, but the chief difference is in the drawings of human beings. The drawings in the south at Jebel Hambra at the head of the Wadi Ithm on the way to Akaba resemble African drawings much more nearly than those of the north.

A swastika appears in an inscription on one of the small hills east of landing ground D near the Baghdad track. In the 'sun parlor' opposite the Tomb of the Roman Soldiers at Petra are dozens of drawings of gazelle and men. In each case the men are drawn thus: —



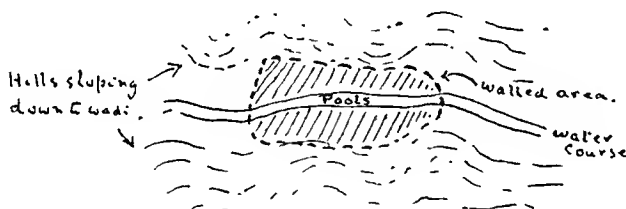
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THE 'KITES'

The remains that are the most interesting, and at the same time give one most furiously to think, are the long walls found all over the Harrat er Radjil, and, as far as can be seen from the air, nowhere else in either Transjordan or Palestine. The word 'kite' is used because one is reminded of a small boy's kite—a more or less hexagonal head with the string and tail springing out from it. Compared with a 'red' village these groups are black. They are very worn and in some places would be quite unnoticed from the ground, were it not that they show so clearly in an air-photograph. Some of the walls are drifted over with sand, some are simply fallen down, some run into mud-flats and reappear again on the other side; few, if any, have survived in anything like their original state. The photographs show how the sites have been built over and rebuilt; and they also suggest how the plan of the kite was evolved.

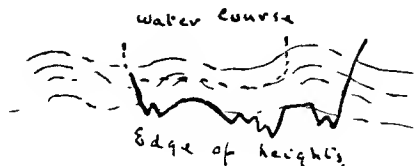
Originally the inhabitants of the area east of Amman lived, I imagine, in the wadis. They still do so, and it is almost beyond comprehension how completely an Arab encampment can hide itself on a desert that appears to be perfectly flat.

North-west of Kasr el Hallabat is an area in the wadi bed that is walled off. The walls cross the wadi at each end of the area thus:—



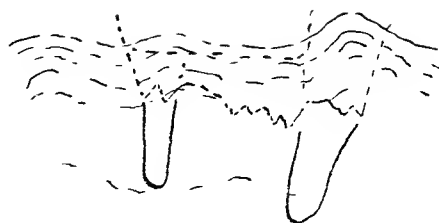
The occupants of the area and other areas similar to it went into the enclosure, together with their cattle, whenever danger threatened. After a time they realized that being in a wadi did not help them much when the enemy stood on the hills outside and threw things at them.

They therefore developed a system of irregular walls which they pushed out towards the edge of the wadi, and constructed a defence shown roughly here. (I should like to date this development to the times before the throwing spear was brought into general use?).



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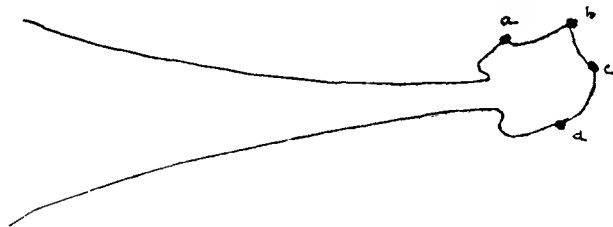
The new scheme of defence was so successful that the cattle increased considerably, and it became necessary to enlarge the protected area. This was done by throwing out U-shaped arms.



After a time it was found that the cattle could be better protected by driving them up into the 'u' area rather than by allowing them to wander about the enclosed area in the wadi—from which they were liable to be driven off, even if the main raid were repelled. As the cattle still increased the obvious development followed, and the U-walls were built resting on water so that the cattle could quickly be driven into the head when danger threatened.

The plan of a simple U was still not satisfactory because an enemy could attack anywhere along the walls, and it was necessary to detail a guard to stand between the walls. I suspect that very often the guard was unable to resist joining in the fight with the result that, even if victorious, the defenders lost their cattle.

Further developments followed exactly on the lines of modern works. A neck was built below the head of the U; strong points (a, b, c, d, etc.) were constructed round the head; and the walls were curved so as to make the enemy bunch and lay himself open to a javelin attack in rear. I say javelin attack and not arrow



because the walls are so sited, often in hollows, that had an enemy possessed bows and arrows they could have made the kites quite untenable from the surrounding heights. If the defenders had possessed arrows, the walls would have been straight between strong points, or would have curved outwards and not inwards. The design became as shown below, the long walls often being over 1000 yards in length.

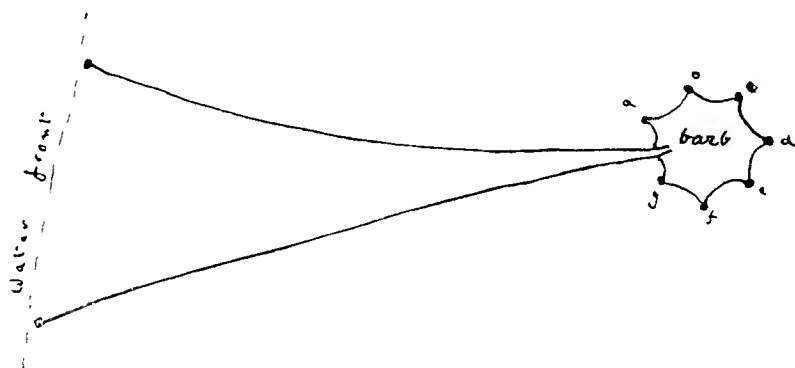
I think that a sufficient number of kites of this period rested on wadis or mud-flats to justify the statement that the open end of the

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U now always rested on a water front; and I think that it can be seen, even from the photographs (plates III and IV), that they were extended as the water receded. Usually the long walls end in a small cairn.

The design was not yet entirely satisfactory, but the type persisted till somebody invented a barb to keep the cattle inside the head when necessary. The barb did away with the necessity for a guard, and the more noise there was the more would the cattle mill, and the less likely would they be to escape through the narrow entrance at the head of the kite.

The finished design therefore became as shown :—



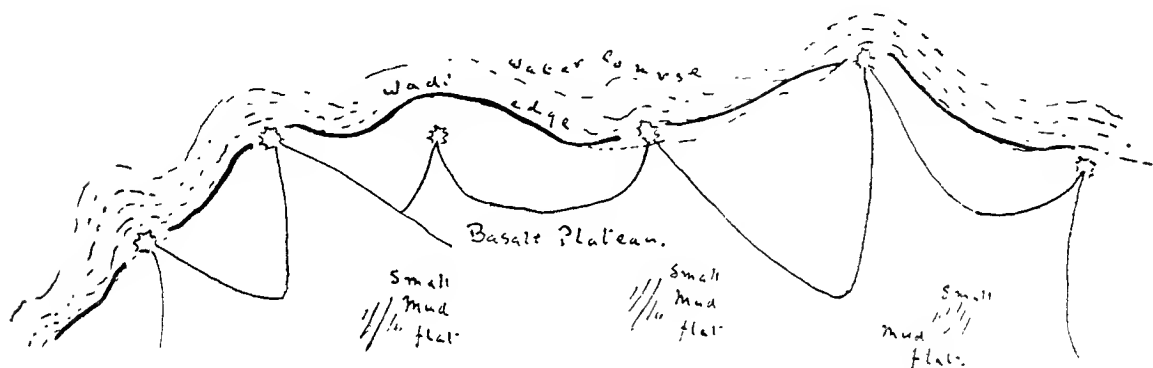
A great many kites of all types are to be found throughout the Harrat er Radjil; and there are three very well defined chains of kites running approximately north-east to south-west, and oriented apparently, to protect the occupants from raids from the direction of Damascus. The chains are some twenty miles or so in length. They are constructed to fit in with the general lie of the country and as far as possible on the wadi edges; but they can be seen on each side of the aeroplane as one flies along the Baghdad track, stretching along and disappearing in the distance. It is difficult to see why certain sections are sited as they were, because now they run through wadis and mud-flats for no apparent reason. A series would appear somewhat like that shown here. The actual series I have in mind is that constructed across the Baghdad track between landing grounds E and F.

The kites are built on the rough basalt, which is now so rough that one has to pick one's way from boulder to boulder; one cannot imagine cattle living on it for any length of time. This makes me suggest that

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the walls were built when there was grazing all over the desert, the kite-walls enclosing good grazing areas. The ground between the walls must in the old days have been covered with some kind of turf, the boulders lying under it. I visualize the whole desert as looking like the present-day country north of Tel Keis (on the Transjordan-Syrian border south of Salkhad), except that there must have been running water and pools all over the area. The whole of the Tel Keis region was cultivated in the Roman period, and looks something like the English Downs. It is covered with cultivation walls. From the top of the Tel one can count over 60 parallel straight walls.

It is difficult to determine the age of the kites. Flints of various ages are found near them, but no connexion with the walls can be



affirmed. One photograph (plate VI) shows that the Roman road and camel-track from Kasr Azrak to the north has broken through a wall, so that the walls must be pre-Roman.

If, as I think, the kites depended on a water front for the defence of one side, some idea of their age can be obtained by comparing the kite south of Kasr Azrak (plate IV) with the Roman reservoir at Ain el Asad a few miles to the south of the Kasr (see ANTIQUITY, III, p. 90, plan). Both works are in the Azrak depression and have relation to the same water level.

The Roman reservoir, fed by a spring within the area, is broken down, but the water sills are some six feet above the present water level. The long Roman wall extending for some miles from the Ain round the south of the depression is now all silted up, but the water level of the depression is several feet below the top of the wall. The soil round the walls is such that at the present day they could

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support only a very small head of water ; and I suggest that the general level of the water in the Azrak depression has sunk some six feet during the last 2000 years. The ends of the kite wall, near the Ain, now rest on the desert about 20 feet above the general water-level of the desert. If the figures are correct the most modern type of kite must have been constructed not later than 2000 B.C. This is what I like to think ; but there are two kites, one built over the other (near Kasr Nemara in the Safa depression north of the Harrat er Radjil) that are in plan suspiciously like that of a Roman camp to which tails have been added. At Kasr Burka, 60 miles north of the Baghdad track at landing ground H, there is a kite of the most modern type of a suspiciously red colour, and it is in such a state of repair that it might quite easily have been in use at the same time as the Roman Kasr. On practically all the sites the kites have been built and rebuilt, with the result that many of the walls run along between the more recent works. Almost all kites are in the basalt area, with the exception of one large group about six miles east of the Amman aerodrome, and another group about ten miles north-east of Zerka (north-east of Amman). Both these groups are built of limestone, and are very nearly invisible from the air except in the morning and evening. The walls exist practically in trace only, all the stones being scattered and very much worn. Stones that at one time could have been described as boulders could now easily be handled.

I have seen no single trace of a kite wall west of the Hedjaz railway, nor south of the approximate latitude of Amman. At one time I had the impression that all kites were designed as defence against an attack from Damascus, but the (middle-aged) kite system that lies on the west bank of the water course, Wadi esh Shem, east of the Jebel Druze and running into the Safa depression, has at some period been completely reversed. Originally these kites stood on the river, but later they were turned so as to rest on a very shallow watercourse, which at the time might well have been a marsh. Many individual kites west of Azrak have also been reversed.

An impression of great age is given by a kite built a few miles north-east of Tel Seyekhin (Azzrak depression) through the head of which a deep little wadi now runs. I can imagine no reason for siting the kite in this way, and think that the wadi has been eroded since the kite was constructed. Mere inspection cannot decide the point.

Against the impression of great age is the fact that, when flying westward from Kasr Burka towards Azrak, the kite area is left behind

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and there follows a considerable area without any kites, although there are red villages in the area. The kites do not appear again till nearing the Wadi esh Shem. On the kiteless area modern Arabs exist for a great period of the year.

There are a number of circles near most of the kites, but it is quite impossible to tell by mere inspection whether kites and circles are associated. Both kites and circles are black, indicating great age.

NOTE BY EDITOR

In the current number of *Syria* (vol. x, pp. 144-163) is an article by Professor Dussaud entitled 'Les Relevés du Capitaine Rees dans le Désert de Syrie'. This should be consulted by all who are interested in the suggestions thrown out by Group-Captain Rees in the above paper. (*Syria* is published by M. Paul Geuthner, 13 rue Jacob, Paris VI; the annual subscription is 120 francs [about one pound sterling], and separate parts are not sold. It is indispensable to students of oriental archaeology). Professor Dussaud's paper deals mainly with the Safaitic inscriptions or 'wasms' recorded by Group-Captain Rees.

With regard to stone walls in the desert, the following extract from Burckhardt is interesting* ;—'Gazelles. These are seen in considerable numbers all over the Syrian Desert. On the eastern frontiers of Syria are several places allotted for the hunting of gazelles; these places are called *masiade*. An open space in the plain, of about one mile and a half square, is enclosed on three sides by a wall of loose stones, too high for the gazelles to leap over. In different parts of this wall gaps are purposely left, and near each gap a deep ditch is made on the outside. The enclosed space is situated near some rivulet or spring to which in summer the gazelles resort. When the hunting is to begin, many peasants assemble and watch till they see a herd of gazelles advancing from a distance towards the enclosure, into which they drive them; the gazelles, frightened by the shouts of these people, and the discharge of fire-arms, endeavour to leap over the wall, but can only effect this at the gaps, where they fall into the ditch outside, and are easily taken, sometimes by hundreds. The chief of the herd always leaps first, the others follow him one by one. The gazelles thus taken

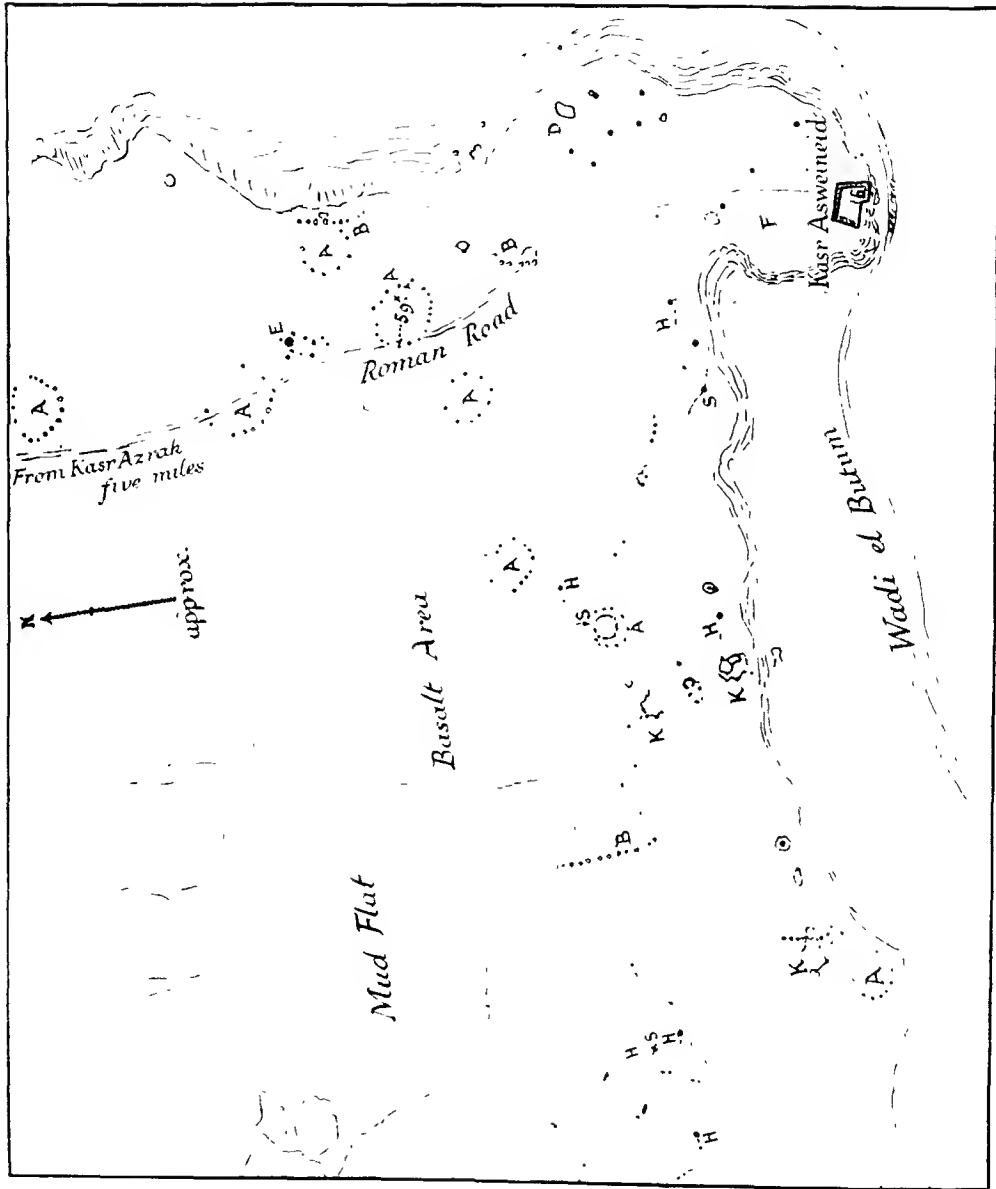
* *Notes on the Bedouins and Wahabys, collected during his travels in the East*, by the late John Lewis Burckhardt; in two vols. Vol. I, 1831, pp. 220, 221.

PLATE I



CAIRN OF SALAMIC PERIOD ON 'TELL A'

FIGURE 4



CIRCLES ETC. IN THE BASALT COUNTRY SOUTH-WEST OF AZRAK

A. Circles of hut circles. B. Lines of hut circles. D. Modern enclosures and earms. F. Modern Arab graves and worked flint area.
H. Safaitic cairns. K. Kite-and kite period groups. S. Safaitic cairns converted to shields' graves.

PLATE II



CIRCLISTIC IN THE BASALT COUNTRY SOUTHWEST OF AZRAK
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FIGURE 5

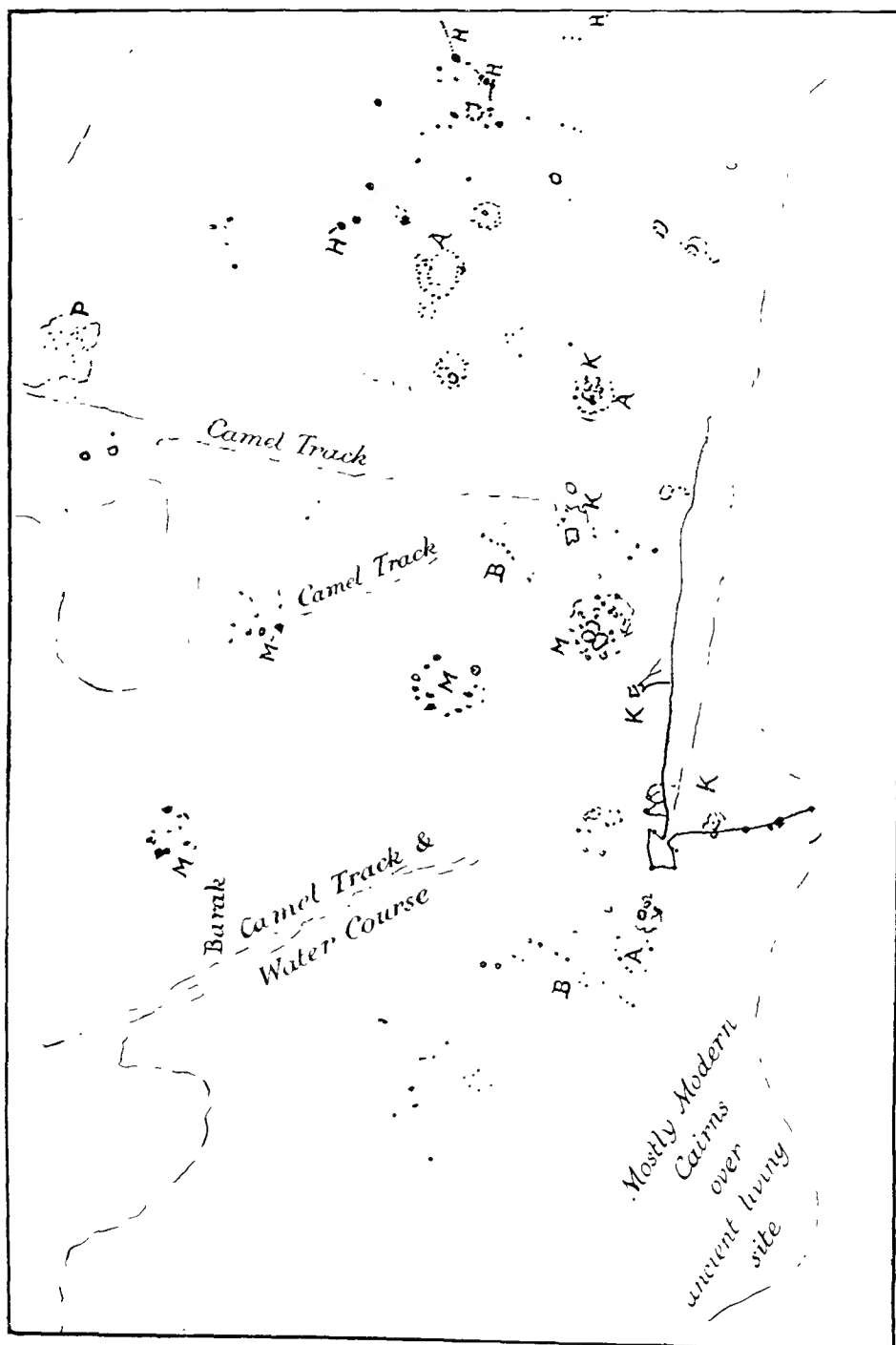


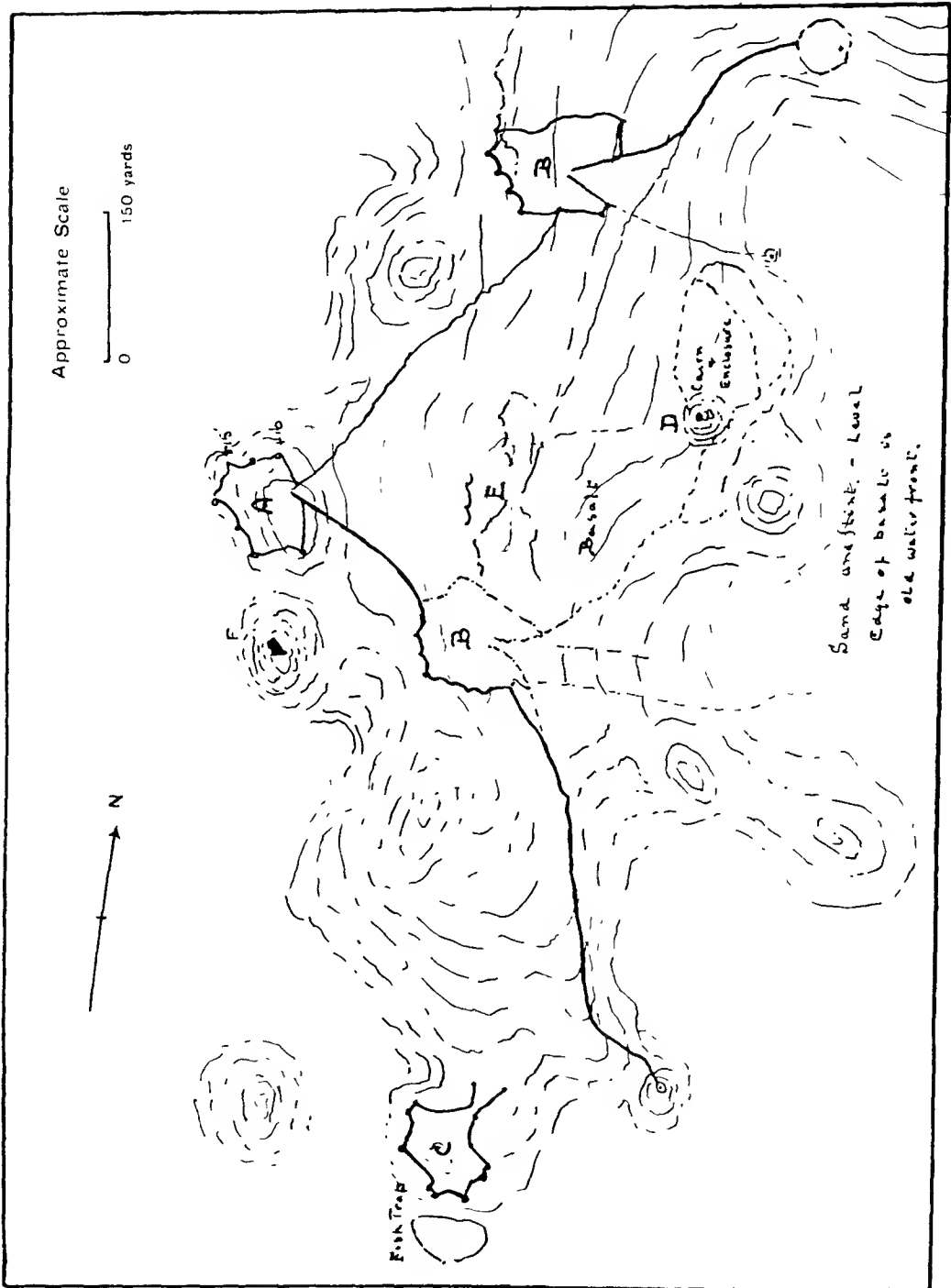
PLATE III



CIRCLE-S I-IC, IN THE BASALT COUNTRY, NORTHWEST OF AZRAK

By permission of the Air Council. Crown copyright reserved

FIGURE 6



KILLS SOUTH OF KASK AZRAK

PLATE IV



KULIS SOU FII OF KASR AZRAK
By permission of the Air Council, Crown copyright reserved

FIGURE 7

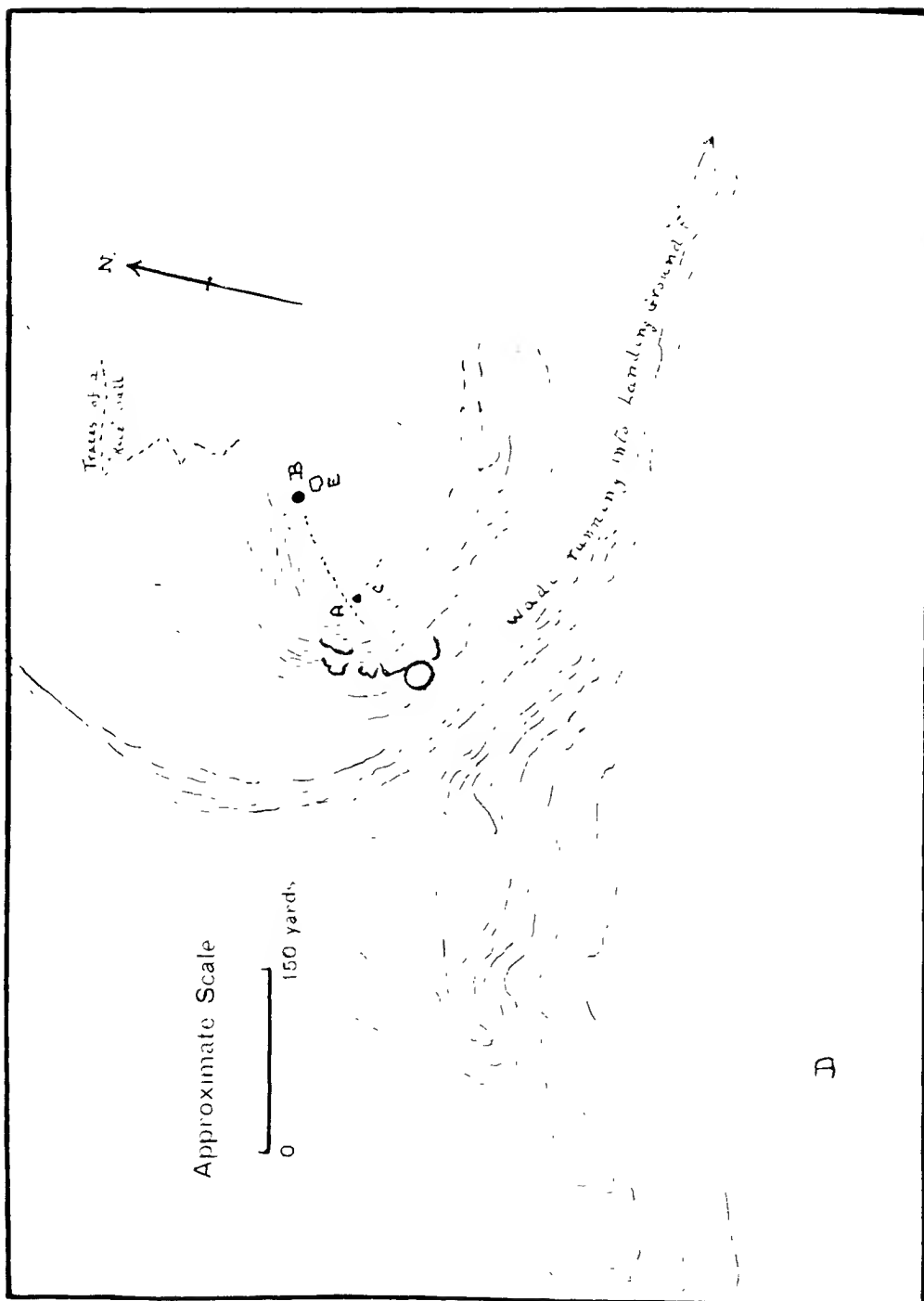
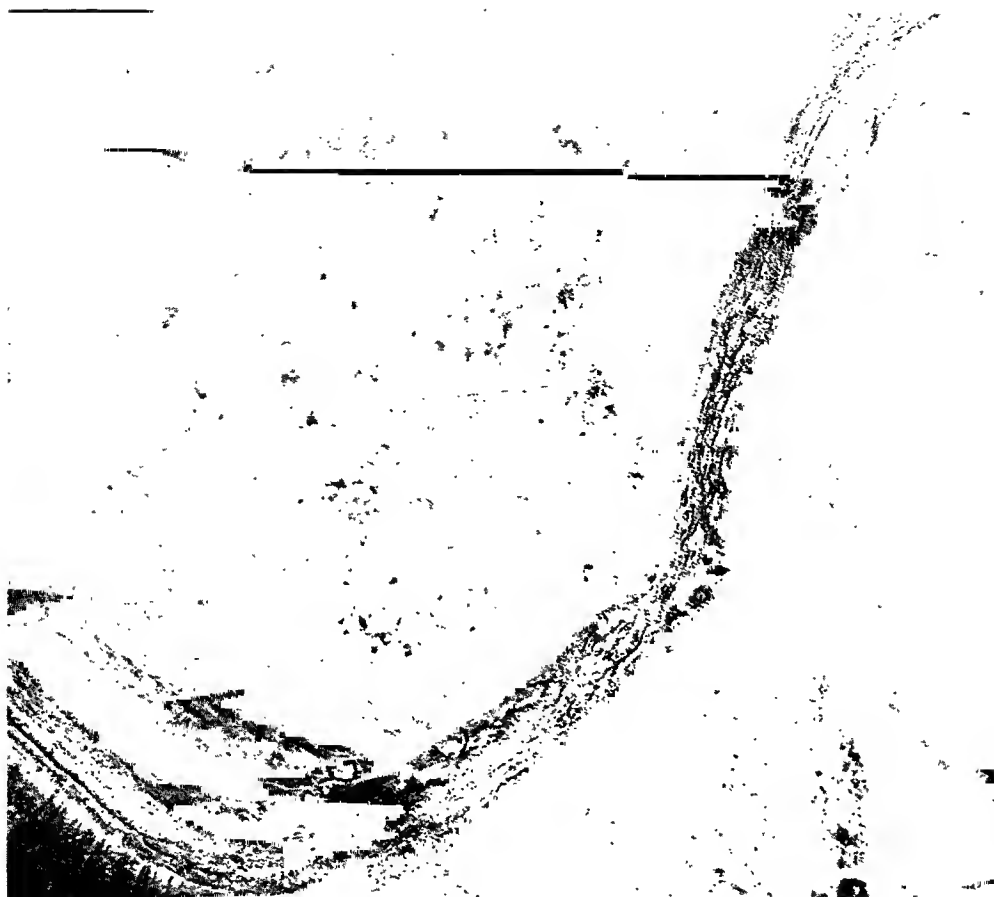


PLATE V



VILLAGE, WEST OF LANDING-GROUND F
By permission of the Air Council, Crown copyright reserved

PLATE VI



KASK AZRAK AND SURROUNDINGS (scale approximate)
By permission of the Art Council, Czech copyright reserved

PLATE VII



THE FISHING VILLAGE OF HABESHA

By permission of the Air Council, Crown copyright reserved

PLATE VIII



KASR LL HALLABAT

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EXCAVATIONS IN EGYPT

For the last two seasons the BRUNTON EXPEDITION has been working in Middle Egypt and bringing to light remains of the various Predynastic Cultures, including the Tasian, which is apparently the most ancient so far known in the Nile Valley. The Tasian and Badarian people have provided us with evidence of agriculture, weaving, and metal-work at a period long before these could have been expected. Owing to the native love of plunder, tomb-robbing is always in active progress; and it is only by immediate scientific investigation that we can hope to rescue the remains of these remote periods, the significance of which has such an important bearing on the rise of civilizations. There is also much to be learnt of the historic periods by working the smaller and more out-lying sites which have been neglected in the past.

So far, the expedition being yet in its infancy, there has been very little public support, and almost all the expenses have had to be met privately. The work is carried out under the auspices of the British Museum, which receives a large share of the objects found.

As it is not possible to carry on the excavations and necessary publication indefinitely without financial assistance, I have to make this appeal to that ever-increasing number of people who are interested in the wonderful civilization of Egypt, whose beginnings (as far back as 5000 B.C. or even earlier), are gradually emerging.

GUY BRUNTON.

BRUNTON EGYPTIAN EXPEDITION

To the DIRECTOR OF THE BRITISH MUSEUM, LONDON, W.C.1

I enclose herewith a donation of £ : :
to the British Museum Fund for the BRUNTON EGYPTIAN EXPEDITION.

Signed

Address

Date....

THE TRANSJORDAN DESERT

are immediately killed, and their flesh sold to the Arabs and neighbouring Fellahs. Several villages share in the profits of every *masiade*, or hunting-party, the principal of which are near Kariatein, Hassia and Homs. Of the gazelle's skin, a kind of parchment is made, used in covering the small drum or tabl, with which the Syrians accompany some musical instruments or the voice'.

We do not go so far as to suggest that the kite-walls can be accounted for in this way, but only that, if Burckhardt's account is correct, traces of these walls should be found in the region referred to.—EDITOR.

NOTES ON THE ILLUSTRATIONS.

Plate I. CAIRN OF SAFAITIC PERIOD ON 'TELL A'.

Plates II and III and with figs. 4, 5.

The area is the basalt outcrop at the south-western corner of the Azrak mud-flat. Below the basalt, east of the area here shown the flats are usually too soft and wet to take an armoured car, but the Roman road begins and ends on good armoured car ground. This patch of basalt is the southern limit of the area that stretches away northward into Syria.

Starting at the eastern edge of the area the first thing to notice are the remains at A and B. Those at A consist of groups of hut-circles and are old, as can be seen from the group marked AS, under the words 'basalt area'. The cairns s date from the Roman period, and are built over the circle, which can be seen from the photograph to be very much older than the surrounding circle of huts. The huts are at present almost flush with the surface, and when seen on the ground are merely heaps of stones. The diameter of the groups is approximately fifty paces. The Arabs at present do not build in circles, but in lines like the groups B. A modern line of Arab tents leaves a string of rectangular marks, especially in rainy weather when a ditch is constructed round the tents; but the marks soon wear away. There are interesting marks, apparently of tents pitched in circular groups, between the stations of Jurf el Derwish and Aneiza on the Hejaz railway in the south of Transjordan. This area must have been somewhere near Oboth where the Israelites stopped before marching round Moab.

These are the only two places where the writer has noticed circular groups of hut or tent circles. Except in this area and in the one to the south no other markings of this kind are known.

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Below the group AB is the ring marked D with its surrounding cairns. The ring is modern and probably still used, whilst the surrounding cairns, although possibly built on old foundations, almost certainly contain recent Arab burials.

The white track is the Roman road from Kasr Azrak to Kasr Aweineid, and is kept open by the camels and rain. It is merely a track. It runs through and past the hut-circles. The circle marked 59 must not be taken to date either the road or the circle, because the cairns are so low as hardly to be an obstruction, and might very well have been entirely buried a few years ago.

The whole of this area is dominated by the cairn E, which was probably the original Roman signal station between Azrak and Aweineid. The original cairn appears to have been altered to a cairn of Safaitic type, which might have been the original signal station. The stones have been used more recently to construct the surrounding cairns, all of which now contain recent Arab burials.

At the south end of the road is Kasr Aweineid. It is very disappointing, having been rebuilt in typical Arab style. The outer walls consist of fairly large stones piled up to make a rough wall and the interstices are filled with small bits of stone. From the photograph it will be seen that the present walls are not built exactly over the old foundations. At the south-eastern corner of the Kasr is a Roman tower, very dilapidated, but the inscribed lintel of the entrance is still lying on top of the heap of stones. The inscription is very worn, but records something about one of the Roman Vexilla.* The tower commands the pool in the Wadi el Butum that still contains water for the greater part of the year.

Just south of the Kasr on the flats (off the plate) is another square Roman tower. Its use is not very apparent, unless it commanded the old crossing of the wadi.

The Kasr commands the view towards Jebel Rashrashiyeh and over Amari wells. Below the Jebel is the old Roman reservoir, about two days march away towards the south-east. The view extends towards the south-west almost as far as Kasr Kharaneh, and on the ridge that cuts off the view is a large cairn that was probably the Roman signal station.

The whole area for about a quarter of a mile north of the Kasr is now occupied by graves, apparently recent Arab, but the ground is

* This inscription is new and not recorded anywhere.—EDITOR.

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covered with worked flints. All along the edge of the basalt towards the west are the cairns with tails marked H. These are of the Safaitic type, and can be dated by the inscriptions as being of and after the time of Christ. Some of these cairns have had a second wing added, and have been converted to graves of sheikhs of the tribe whose wasm (tribal mark) is four parallel lines. I believe this wasm belongs to a section of the Rualla. These sheikhs' graves are interesting as they are mostly oriented so that the wings protect the grave from the prevailing south-west wind ; and because usually there is a doorway built in one wing, which is, I suppose, a spirit-door.

Under the words 'basalt area' are groups marked K. These walls probably date from the kite period. A finished kite is to be seen on the left of the area (which is reproduced as plate II). The groups can be identified by their letters till we get to the finished kite, which is a construction of medium age built over one of a much earlier type. The earlier wall can be seen inside the 'v' of the kite walls. Part of an earlier kite is marked K and juts out from the newer walls. The walls of the kite have been built over older constructions, and now form part of more recent ones.

The wall extending to the south can be seen running over an old hut-circle group, upon which modern goat pens have been built. The darker constructions marked M are modern circles built over old ones. They are used each year as the tribes cross the area.

Some of the old camel tracks can be seen leading from the various sites to the mud-flats that at present contain water only after rain, but which were probably permanent water-pools at no very distant date in the past. The tracks are old, for they show up as clear lines. The more modern and slightly used tracks show up as a chain because the camel has only troubled to kick away enough stones to allow him to step from one clear space to another.

At the top of the area (P), near the mud-flat, is a camel barak-place (from which we get our word barracks). The stones have been cleared over part of the area, but as usual the workers could not be bothered to finish the job, and have left the heaps of stones still lying about.

At the left hand bottom corner of the area there is a site that has always been a desirable camping site. It is round the head of the kite. The area has been built over and rebuilt and still has tents pitched on it each year. The persistence of such routine is perfectly marvellous. This site must have been used annually for thousands of years.

The whole of the area shown has flints scattered over it, and this

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makes it most difficult to date anything, because old flints can be found round what one knows quite well to be modern constructions.

The little circles in the wadi bed are probably recent Arab burials.

Plate IV and fig. 6. KITES SOUTH OF KASR AZRAK.

The kites are built on a basalt spur south of Kasr Azrak. A is the most modern type with a barb to prevent the escape of cattle. The strong points round the head are a spear's throw apart. B, B are kites of earlier types, built over the ruins of other kites. C, E are still earlier types.

Plate V and fig. 7. VILLAGE WEST OF LANDING-GROUND F.

The cairn groups are at B and C. Note how the tail of B group has been built over the circles at A. The circles at D are mostly more recent than the cairns. In two cases to the south-west the cairn group stones have been used to make the circles.

The whole top of the spur A, B, C, has been cleared and 'brushed' and the spur looks 'red' from a short distance.

Cairn E is probably an Arab grave made from the stones of B.

Plate VI. KASR AZRAK AND SURROUNDINGS.

Plate VII. THE FISHING VILLAGE OF HABEIBA.

The houses show up as rectangles and can be clearly distinguished. The village is built on a spur of basalt jutting out into one of the mud-flats that form a series between Kasr el Hallabat and Kasr Azrak. On the edge of the basalt in the mud-flat can be seen the fish-traps.

The largest rectangle lying at the east end of the spur is a Roman guard-house, and probably forms the half-way house between the two Kasrs.

The dark broken double line round the spur is a watercourse draining the mud-flat. The mud-flat seldom holds water but the watercourse usually has pools lying in it till late in the Spring. Sand-grouse water here in the early part of the Summer.

Numerous flints are found round the houses and many of them show that some of the inhabitants were employed in fishing.

The colour of the village of Habeiba is grey.

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Plate VIII. KASR EL HALLABAT (THE RUINED CASTLE).

The square is a Roman fort re-built later on the original foundation. An inscription in Latin, dated to 214 A.D., reads as follows :—

Pro salute domini Imperatoris Augusti nostri M. Aureli Antonini Pii Felicis Arabici Adiabenici Parthici Brittanici Maximi castellum novum aedificaverunt milites cohortis Ulpiae miliariae I Thracum sub Flavio Severo praefecto per P.(?) Furnium Julianum legatum Augusti pro praetore.

The following translation has kindly been supplied by Mr R. G. Collingwood :—

For the welfare of our lord and august Emperor Marcus Aurelius Antoninus ('Caracalla'), pious and fortunate, the mighty conqueror of Arabia Adiabene Parthia and Britain. The soldiers of the First Ulpian (i.e. Trajan's Own) Cohort of Thracians, 1,000 strong, commanded by Flavius Severus, prefect, built this new fort under the direction of Publius (?) Furnius Julianus, Imperial propraetorian legate.

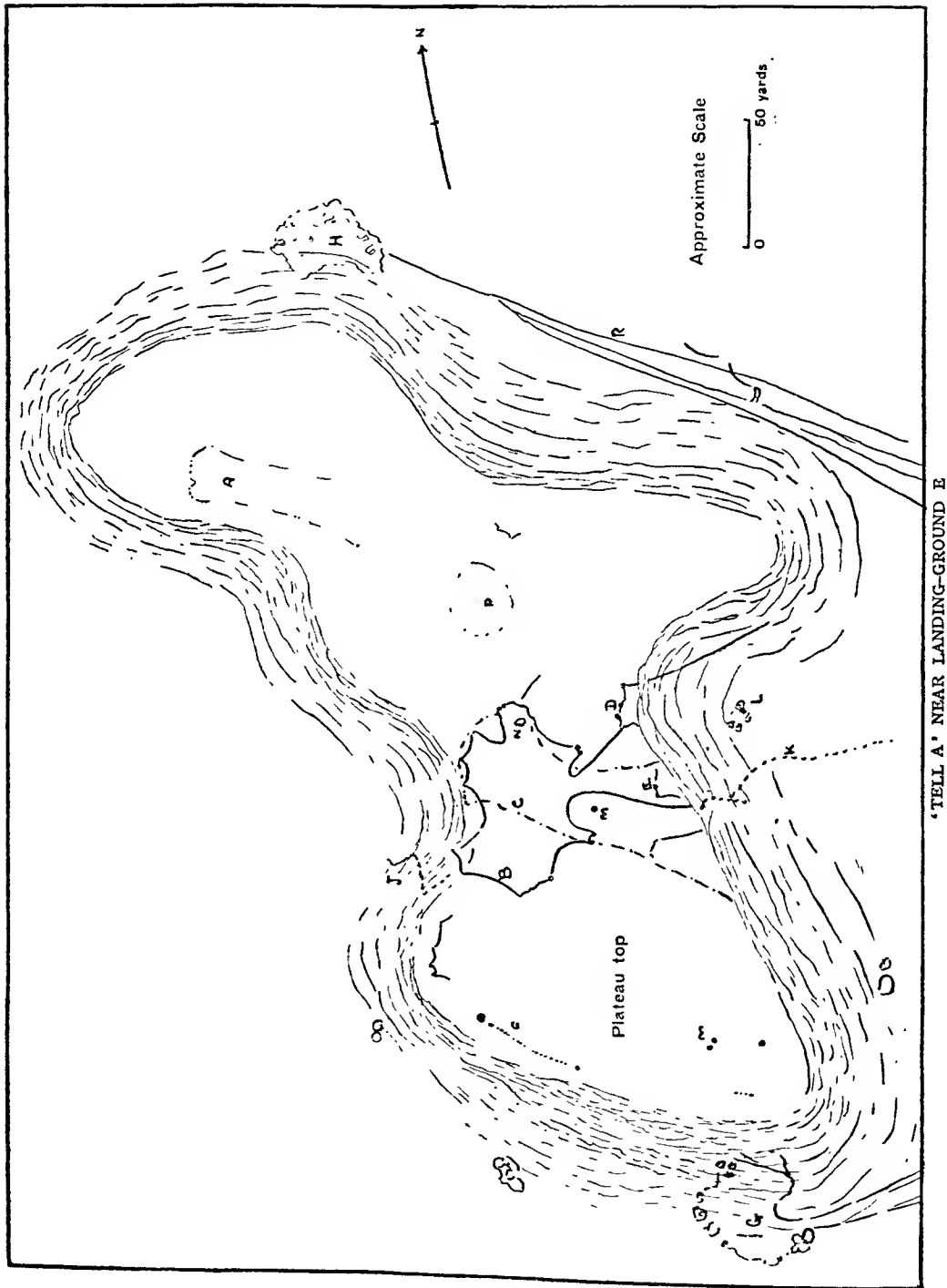
The inscription is published in Brünnow and Domaszewski, *De Prov. Arab.* III (1909), p. 323 (after Littman).

The northern part of the fort is a church bearing an inscription in Greek on the side of the door. A mosque, showing as a small rectangle, can be distinguished to the south-east of the main fort. Various Roman houses are also to be seen, all overbuilt by the Arabs.

The southern large hole in the ground is a Roman steined water tank, and the U-shaped rise in the wadi to the north of the tank is an Arab garden and water catchment.

A series of milestones link the Hallabat fort with the Roman town of Gada, and roads run from it to Azrak, to Salkhad, to a fort in the hills about halfway to Umm el Jimmal (on the present Syrian border) and to the Roman town of Aditha. No roads are to be distinguished running south and east, so that we may infer that this castle is probably one of the frontier posts.

FIGURE 8





TELL A, N. LAR. LANDING-GROUND 1
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THE TRANSJORDAN DESERT

Plate IX and fig. 8. 'TELL A'.

- A Early type of kite. Note small cairns at mouth.
- C Early type of kite slightly progressed.
- B Latest but one type of kite.
- E, D Comparatively modern works.
- F Group of 'red' cairns.
- G, H Medium-aged kites, rebuilt as modern goat pens.
- J, K Paths up 'tell'.
- L Old village. Many flints here.
- M Modern Arab graves.
- N Comparatively modern circle, not connected with old kites.
- P Small mud-flat.
- R This wall runs across wadi and joins the group on the other side about two miles away.

The Holy Mountain

by J. H. DUNBAR

IT seems amazing that an African negro should ever have been able with any sort of justification to style himself 'Emperor of the World', and perhaps even more so that he should have been an enlightened prince ruling a people who were in many ways quite as civilized as we are today. For though it might be easy to imagine a native military genius, it is difficult to picture him as a patron of the finer arts.

From the very earliest recorded times what is now the northern Sudan—in those days described variously as Nubia, Ethiopia, or Kush—was in close relation with Egypt; and between the two countries there was a continuous exchange, not only of produce and material, but also of ideas and customs.

The Nubians, while readily susceptible to the influences of the highest culture, were nevertheless essentially a warrior race, and a constant thorn in the flesh of their northern neighbours. They were not to be overawed, even by the might of Ancient Egypt, and whenever they thought there was the slightest chance of success, they would swoop down on the Kingdom of the Pharaohs like wolves on the fold. The fortunes of war were fluctuating, victory resting sometimes with the Nubians and sometimes with the Egyptians, in which latter event the blacks would be conscripted and formed the pick of the Egyptian army.

By 1000 B.C. Nubia was firmly established as an independent kingdom whose capital was Napata, on the Nile at its fourth cataract, in what is now the Sudan province of Dongola. Two hundred and fifty years later Nubia was so powerful that her native king Piankhi was able not only to invade but also conquer the whole of Egypt; and for the next hundred years the black princes of Nubia wore, not unworthily, the Double Crown of Upper and Lower Egypt. Nubia's high-water mark was reached under Piankhi and his grandson Tirharka; and though the latter, after a lifetime of incessant fighting with the Assyrians, had to retreat to his native Napata, yet a hundred years later the Nubians were again strong enough to drive back the Persians under Cambyses.

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When the Romans conquered Egypt the Nubians were being ruled by a succession of Amazon queens with the title of Candace. Confident that they could drive out the European invaders, they again marched north, but were defeated. But such was the respect of Rome for these warlike blacks that she made with them a hundred-years treaty, paying Nubia annual tribute to leave Egypt unmolested.

In the sixth century Nubia became a Christian kingdom with its capital at Dongola, some hundred and fifty miles down stream from old Napata. Though continually harassed by Mohammedans, it survived until the Middle Ages when it at last succumbed, having had a not inglorious history as an independent power for two thousand five hundred years!

The ancient city—or more correctly, district—of Napata, is today the site of the villages of Kareima, Merowe, Nuri and Kurru. There can be few more delightful and impressive experiences than to explore this region that was nearly three thousand years ago the capital of a powerful and enlightened empire! Strangely enough, though so easy of access, this attractive spot is practically never visited except by Government officials in the course of their duties; and even the adventurous spirits who penetrate as far as Khartoum and Omdurman do not add to their itinerary the extra two or three days that could be so pleasantly and profitably spent there.

Kareima is the terminus of a branch line of the Sudan railways; and for miles away you see from your carriage window the crowning glory of Napata—Gebel Barkal or Barkal Hill, the Holy Mountain of the Ancient Egyptian inscriptions. Standing over three hundred feet high, covering an area of more than half a mile square and exceeding in mass by fifty times the great pyramid of Gizeh, the Holy Mountain, an isolated rock, rises sheer from the desert in grandeur and majesty like an island Gibraltar, all the more impressive from the partially detached fragment that rises abruptly beside it. (Plate 1).

Small wonder that those old-time peoples should have thought this natural pantheon to have been planned by the divine architect as an earthly lodging for the gods, and that prayers offered at the Holy Mountain would soonest reach their ears.

At the eastern end of Gebel Barkal are the remains of two huge temples, built by Piankhi and Tirharka, which in size and splendour would have matched our finest cathedrals. They must have looked superb against the background of the mountain, with their painted walls flashing in the sunlight. There are remains of massive pylons, columns

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and pillars—all of them carved with hieroglyphics and cartouches, and with figures of gods, kings and horse-drawn chariots. The carvings are covered with a white plaster that was painted or enamelled in the loveliest shades of blue, green, yellow and red. In Piankhi's temple, which was the larger of the two—it is nearly two hundred yards long and contains a hundred columns—there was an avenue of grey granite rams, and a ponderous granite altar most delicately carved. The altar end of the temple abutted right against the side of the mountain, and behind the altar there were doubtless chambers and corridors tunnelled into the mountain itself. Unfortunately a landslide has damaged this portion of the building and has made exploration too dangerous a proceeding. From the temple of Tirharka (plate II), however, there are rock chambers leading into the mountain. These may be safely visited; their walls are most beautifully carved and painted with figures of the Nubian gods.

Like practically all other Nubian sites, Napata has been continuously occupied down to the present day; and in the temples of Gebel Barkal are to be seen the mud ruins of what must have been Christian churches, while the whole neighbourhood is strewn with broken pottery of the Christian period.

The top of the Holy Mountain is as flat as a billiard table. What a sight it would have been had Piankhi used the mountain itself as a platform or plinth on which to build his temple! Imagine, three hundred feet above the shimmering sand, massive pylons springing from the mountain top and surmounted on festive days by painted poles flying coloured flags and streamers that would have seemed to reach to heaven! The idea apparently did not occur to him, or, if it did, not until it was too late to be put into practice; for the magnitude of the task would hardly have deterred him.

How dauntless in conception and perfect in achievement were those ancient Egyptians who ruled the world in arms, in culture and in craftsmanship for so many centuries! Later times, it is true, have produced a Julius Caesar and a Napoleon Bonaparte, but the most brilliant counter-attack in the world's military history was made by Rameses II against the Hittites at Kadesh three thousand years ago. There is no greater literature than our Bible; but some of the finest passages are strikingly like translations of the hymns to Aten. Neither Benvenuto Cellini nor the Goldsmiths and Silversmiths Company could surpass in design or in execution the exquisite work of those ancient Egyptian jewellers; while time has yet to give us another woman as

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capable as Hatshepsut or as beautiful as poor Nefertiti. Some twenty-five hundred years after Piankhi and Tirharka were dead, a French monarch so dazzled the world that he was styled the 'Roi Soleil'; but his palace at Versailles is but a tawdry affair when compared with the homes of the Ethiopians, who, as Kings of the Two Lands of Upper and Lower Egypt, were 'Sons of the Sun'.

There is a local tale to the effect that the novices, before being initiated into the mysteries of the temple priesthood and in order to prove themselves worthy of ministering to the mountain gods, had to undergo a searching trial by ordeal. The mountain was honeycombed with a maze of chambers, passages, secret doors and concealed stairways, to which were added various mechanically-operated obstacles and contrivances. The candidate for the priesthood was led to the entrance—no doubt from the inner temple sanctuary behind the altar—and left to wander. He promptly lost himself in the labyrinthine corridors, gradually succumbing to nervous terror as he was assailed by unforeseen or unknown dangers. Walking down pitch-dark passages the ground would suddenly disappear beneath his feet or he would tumble headlong into a shaft or well. Feeling his way along a wall, his outstretched hand would be grasped in a cold and clammy grip, or turning a corner he would be confronted with a glaring-eyed monstrous figure suffused with an unholy light. Ghostly figures would flit about him, and sepulchral voices whisper mockingly in his ear, or his blood would be frozen by peals of demoniacal laughter. Should he by any chance keep his head and, stumbling upon the right path, find his way out from this place of horrors, he was welcomed as fit to enter the service of the gods, and, as a member of the priestly caste, would soon attain to supreme power over his superstitious fellows and often over the Pharaoh himself.

Just behind the Holy Mountain is a pyramid field, one of the royal cemeteries of Napata, though neither Piankhi nor Tirharka was buried here. Some of the pyramids are of orthodox form but others have a most unusual appearance, being very high in proportion to their breadth. Many of the pyramids are in a state of perfect preservation; in front of them are the ruins of the funerary chapels, while the sloping shafts leading to the tombs beneath look for all the world like the entrances to deep dug-outs. The pyramids are not smooth-sided but mount in a series of narrow steps; they are beautifully made of blocks of stone, the way in which the corner stones are bonded and dovetailed together being a particularly fine example of workmanship. (Plates III–IV).

While at Gebel Barkal, the opportunity should by no means be

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missed of visiting Nuri, Merowe and Kurru, which also formed part of ancient Napata.

Nuri, up stream on the opposite bank of the river, is only about half an hour away by launch, and is a delightful spot. Mounting donkeys, you ride through the charming red and white village nestling in its grove of palm trees, and follow for two miles or so a grass-bordered canal between fields of cotton and barley to another pyramid area. The pyramids here are not so well preserved as at Gebel Barkal, as the local sandstone of which they are built is very soft ; but there is the compensating attraction in the fact that one of them was the grave of Tirharka.

Ten miles or so down stream from Gebel Barkal and on the same bank is the pyramid field of Kurru, and it was here that the great Piankhi was buried. Two of the tombs can be entered ; they are like those in the Valley of the Kings at Thebes though on a more modest scale. Here again the workmen were handicapped by the softness of the local sandstone. Each grave consists of two chambers, and ante-room, and the tomb proper which contained the sarcophagus. The walls are not carved as usual but are covered with a white plaster on which there are painted in the softest colours—still as fresh as when first they were applied—hieroglyphs, and figures of the king and gods ; while the roofs are like the canopy of heaven with their five pointed golden stars on a blue ground. In the cemetery at Kurru were the graves, not only of the kings and of the queens, but also of favourite horses which on the death of the sovereign were sacrificed and buried standing upright, so that the spirit of the king might be able to ride his ghostly steeds in the Other World.

Between Gebel Barkal and Kurru but on the opposite bank is Merowe, now the capital of the Sudan province of Dongola, just as Napata was the capital of old Nubia so long ago. Merowe is a model little African market town, and with its well-planned, straight, wide, clean and tree-bordered streets is a delight to the eye. Both government buildings, which are spacious and of pleasing design, and private houses, are of mud, and are of the peculiar terra-cotta red with white corners that is such a distinctive feature of this province. The colouring matter is obtained from a local stone which when dry is quite hard, but when boiled in water yields a most excellent distemper.

Merowe is justly famous for its museum, and for its fruit-gardens which supply towns such as Atbara—three hundred miles away—with the most luscious oranges and grape fruit. The museum—all the more

PLATE I



THE HOLY MOUNTAIN

PLATE II



TEMPLE OF IRIARKA

PLATE III



PYRAMIDS AT GEBEL BARKAL

PLATE IV



PYRAMID-FIELD AT GEBEL BARKAL

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interesting because it is not very large—houses the treasures that have been found locally. Here are to be seen a fine sarcophagus, steles and tablets, sphinxes and statues, vessels and utensils in stone and pottery, weapons and ornaments, memorial figures, carvings, columns and capitals, all from the temples of Gebel Barkal and from the cemeteries at Nuri and Kurru—the gem of the whole collection being a unique and life-size statue in black granite of Tirharka, the Biblical king of the Ethiopians.

These river excursions are the more enjoyable in that, in addition to the ancient glories of far-off days, you see displayed the whole panorama of native life in its charming and original simplicity. The villages have their special weekly market days, just like small towns at home, when on the stalls and booths are offered for sale not only the fruits of the soil but also articles of local art and craft—the province being noted throughout the country for its leather work. All along the palm-fringed river banks are to be seen the peasants, tending their crops of beans, barley and lentils, and raising with their water-wheels the precious liquid from the sacred Nile—just as did their fathers before ever kings reigned over Holy Napata.

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The Sahara

by E. W. BOVILL

THE history of North Africa is dominated by the Sahara, which has always been a vital factor in the lives of the peoples of Barbary and the Western Sudan. The cultural and economic development of both has been profoundly affected by intercourse between the two. Yet they are separated by a desert which forms one of the world's greatest barriers to human intercourse.

A slight increase in the aridity of the Sahara would so extend the waterless stages that the caravan routes would become impassable to camels and therefore to men—leaving, of course, mechanical transport out of consideration. A correspondingly slight increase in rainfall would quickly multiply the waterholes and desert pastures and render man independent of the now necessary camel. The question of climatic change in historic times is therefore a matter of importance to the student of the history of northern Africa.

The climate of nearly all parts of the world seems to have undergone changes in geologically recent times, and the Sahara is no exception. Long before the dawn of history, which in this region is placed in the fifth century before Christ, the northern Sahara supported a large sedentary population whose abundant remains are widely scattered over areas which have since reached the extreme limit of desiccation.¹ It then probably presented no obstacle to the migration of wild fauna. But those conditions belonged to times long anterior to the period with which we are concerned.

There is a very widespread belief in the instability of climate and it is almost invariably of a pessimistic nature. Man is ever ready to note deterioration in his home climate, and when he travels abroad and beholds the ruins of deserted towns, dry river-beds and extinction of wild fauna he is quick to see in them a confirmation of his suspicion that the world is decaying. Evidence of this type is probably nowhere

¹ E. F. Gautier, *Sahara Algérien* (Paris, 1908), p. 60 *et seq.* Lauzanne. *Bulletin du Comité de l'Afrique Française*, 1921, p. 246.

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more obvious than in North Africa, which in consequence is generally credited with being a victim of climatic change.

The world has few more impressive monuments to offer than the vast amphitheatre of El Djem, built to seat 60,000 spectators but today a ruin set amid utter desolation excepting for a few Arab hovels clustering at its foot which serve to emphasize its degradation. Or Timgad, lying like a bleached skeleton stretched on an arid plain, its deserted streets bordered by channels which we know once flowed continually with water. These and countless other ruins lie scattered over an inhospitable land which was once called the Granary of Rome. In the museums are numbers of mosaics taken from Roman villas representing a fauna now found only in tropical Africa,² while every schoolboy knows that elephants roamed North Africa in Carthaginian times. The evidence of climatic change seems to be overwhelming and consequently it is widely believed that the desert is encroaching from the south and, as a corollary, that the Sahara itself was in historic times very much less arid.

As the greater part of the Sahara has reached the extreme limit of aridity it is rather to its outer fringes, where desert conditions give way to steppe, that we naturally look for signs of progressive desiccation. In Barbary the problem has been closely studied by Gsell, the greatest authority on the history of North Africa.³ Exhaustive research has convinced him that conditions have changed but little since the Roman period. Purely local changes caused by earth movements and other factors are admitted but do not alter the main argument.

Throughout Barbary stories of failing wells and shrunken springs are common enough. In nearly every case it is due to neglect by the natives. Under the Romans special engineers (*aquilegi*) were appointed to look after the springs. Everything was done to foster and maintain the water supply. Most of the springs which supplied Roman settlements still exist and for this reason French colonies tend to rise on ancient sites. Whether the springs flow as freely as they did fifteen hundred years ago cannot be proved, but there is no evidence to the contrary.

Scattered throughout the country are the ruins of reservoirs, cisterns and wells which the Romans constructed to provide water for man and beast and for the irrigation of crops. The ruins of vast aqueducts striding across the desolate plains, impressive monuments to

² A striking example in the Bardo (Musée Alaoui) at Tunis illustrates Orpheus charming the animals, amongst which is a remarkable picture of the Bubal hartebeest.

³ Stéphane Gsell, *Histoire Ancienne de l'Afrique du Nord* (Paris, 1921), vol. I.

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the skill of Roman engineers, are a common sight. Cirta (Constantine) drew its water from twenty miles away, Caesarea (Cherchel) from nineteen miles, and Carthage from nearly ninety miles.⁴ All these works were destroyed or neglected by subsequent invaders.

The rivers today appear to carry as much water as they did in the past. They are navigable to the same extent and the Roman bridges were of no greater span than modern conditions require. Had the rivers been deeper many of the Roman fords would have been useless.

The modern traveller in North Africa sees little which accords with his preconceived ideas of the Granary of Rome. The crops are thin and the ears lean. Under the Emperors, Africa had to supply as a tax a quantity of wheat sufficient to feed half the Roman *plebs*, estimated at about 350,000 souls. As Gautier⁵ has pointed out, for a country of its size this was no great burden and in itself affords no evidence of more favourable natural conditions than those of today. Roman Africa owed much of its prosperity to the cultivation of the olive. All round the Mediterranean on sites formerly occupied by the Romans are found abundant remains of *amphorae* which contained olive oil and which still bear the marks of African potters. It was the presence of immense numbers of ancient oil presses in a vast wilderness which in recent years prompted an enterprising French director of agriculture to plant olive trees on a huge scale in southern Tunisia and thus restore prosperity to a derelict region.⁶

During the Roman occupation there were extensive areas entirely lacking in water. Capsa (Gafsa) was surrounded by immense solitudes but itself had an inexhaustible spring.⁷ Provision of water for troops was a constant anxiety to their leaders, notably to Caesar⁸ when fighting near Susse and six centuries later to Belisarius⁹ in the same region.

Several Roman authors would have us believe that Barbary was in their day less favoured than at present. Sallust's famous comment will be recalled: *caelo terraque penuria aquarum*.¹⁰ Others had an equally low opinion of the country. It was certainly subject to severe

⁴ The Romans appreciated the value of good water and if local supplies were not of the desired purity they did not hesitate to look far afield for their needs.

⁵ E. F. Gautier, *Les Siècles obscurs du Maghreb* (Paris, 1927), pp. 14-16.

⁶ Ibid. *op. cit.*, p. 16.

⁷ Jugurtha. LXXIX, 4.

⁸ Bell. Afric. LI, 5. LXIX, 5. LXXIX, 1.

⁹ Procopius. *Bell. Vand.* I, 15, 34. *De Aedificiis*, VI, 6.

¹⁰ Jugurtha. XVII, 5.

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droughts. Hadrian was beloved of Africans because on his arrival in the country rain fell for the first time for five years.¹¹ Records of disastrous famines are numerous.

We now come to the question of extinct fauna, to which those who believe in the desiccation of North Africa attach much importance, Gsell has clearly shown that arguments based on this class of evidence, of which there is a great mass, are not conclusive.

The elephants which the Carthaginians caught and trained—an art which they had learnt from the Greeks, who were the first to use African elephants¹²—belonged to the same species as those which are today found throughout tropical Africa. They were however small in size, modified by isolation and environment. Wild elephants survived in North Africa far into the Christian era, their last habitat probably being the High Atlas. The belief that they had only survived under increasingly unfavourable conditions which eventually caused their extinction has no evidence to support it. There are regions in the Atlas and the Tell which are still capable of supporting elephants, though there are others such as Setif and Susse where elephants used to roam but which are now unsuited to them. A local modification of climate in the latter areas has probably taken place. But climatic change seems to have been as little responsible for the extinction of the elephant as it was for that of the ostrich, which has disappeared from Barbary within living memory, or for the fast approaching extinction of the lion and leopard.

The Romans themselves were directly responsible for the extinction of the elephant as they probably were for that of other species which today are found only south of the Sahara. The principal cause of the enormous destruction of African fauna was the demand for beasts to provide sport at the Games. Augustus tells us that 3500 African animals were slain in the twenty-six Games which he gave to the Roman people.¹³ The elephant however was principally persecuted for its ivory, immense quantities of which used to be exported to Rome. It is interesting to note that according to Pliny the cartilage of an elephant's trunk was one of the particular delicacies served from Roman kitchens.¹⁴

¹¹ Hist. Augusti, *Hadrian*, XXII, 14.

¹² The Greeks had learnt the use of elephants during the campaigns of Alexander, first at Arbela and afterwards in the Indus valley where elephants were opposed to them. They subsequently organized elephant hunts in Africa.

¹³ *Res gestae Divi Augusti*, IV, 39.

¹⁴ *Natural History*, V, I. VIII, 10.

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The arguments for a general modification of climate in North Africa during the historic period do not carry conviction. Deserted cities are found to be still habitable, rivers are much the same as they used to be, droughts seem formerly to have been as frequent as they are now, and conditions are not generally unfavourable to fauna which are now extinct.

Gsell thinks that North Africa as a whole may perhaps have enjoyed a slightly more abundant rainfall in Roman times. 'Mais, en somme', he concludes 'si le climat de la Berbérie s'est modifié depuis l'époque romaine, ce n'a été que dans une très faible mesure'.¹⁵

Turning from the northern to the southern fringes of the Sahara we have to consider an entirely different type of evidence. In the Sudan, records of the past are as scarce as they are plentiful in the north. There is hardly any material to enable us to picture accurately the country as it was a thousand years ago, or even five hundred. The few written records confine themselves to genealogies and the bare facts of history. They throw little light on contemporary conditions of life. Architectural monuments scarcely exist. Almost the sole building material has been clay, so soft and friable that an abandoned site soon crumbles into mounds of earth which vegetation quickly obliterates.

Reliable records date back only to the European occupation, scarcely a generation ago. They provide however a mass of evidence which places it beyond all doubt that whatever may have happened in the past the present is a period of progressive desiccation. The Sahara is encroaching on the Sudan.

In Senegal, desert conditions are becoming increasingly prevalent. Wells are failing and rivers are shrinking. The river beds are being choked by drifting sand and their waters are becoming increasingly saline. Crop failures due to decreased rainfall are a constant source of anxiety to the authorities. Of great significance is the tendency of the sedentary population to migrate southwards in search of less arid regions, their place being taken by pastoral Moors from the desert.¹⁶

On the Upper Niger, Lake Fagbini is drying up and the area of annual inundation is shrinking. It has been proved that in the fifteenth century, when Soni Ali of Songhai attempted to link Walata with the

¹⁵ Gsell, *op. cit.* vol. I, p. 99.

¹⁶ *Annales de Géographie* (1917), xxvi, 231, 377 *et seq.* *West Africa*, 1 April 1922. The Gambia, *Annual Report*, 1920.

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lake by a canal, its shores extended much further westward.¹⁷ Within the bend of the Niger a tendency among the Tuareg to migrate southward has long been noticed.

Passing eastwards into Nigeria we come to an area where much evidence of desert encroachment has been collected. The northern frontier falls roughly where the thinly populated pastures and unsettled conditions which are characteristic of the fringes of the Sahara emerge into fertile plains supporting an extensive agricultural community. Along this frontier water is the limiting factor in the lives of the people, who at once feel the effects of fluctuation in the supply. In the provinces of Sokoto and Bornu dry river-beds, dwindling lakes, shrinking wells, failing crops and a southward movement of agriculturists are unmistakable symptoms of progressive desiccation.¹⁸

In northern Nigeria there has perhaps been too great a tendency to ascribe every movement of the population to desiccation. The attachment of the African native to the soil is not great and it takes little to set him moving. The causes are often political. Conscription, taxation, and irksome restrictions frequently lead to migrations across political frontiers. Natural increase in population, which has been very marked throughout Africa since Europeans put an end to tribal war and curbed the ravages of famine and disease, constantly causes communities to outgrow the resources of their locations. When this happens the people must move.

In the Western Sudan the southward movement of the population is too general and the excuse of shrinking wells and failing crops too common to be ascribed to anything but some great natural cause. This is generally admitted to be progressive desiccation.

But the desiccation of the Western Sudan is not itself wholly natural. The incalculable harm which is being wrought throughout tropical Africa by the shifting cultivator is now widely recognized. The African farmer has little knowledge of crop rotation or manuring. He cultivates his land to exhaustion and then with fire and steel makes a fresh clearing in the surrounding bush or forest. In 1924 the Governor of Nigeria declared that 'the necessity for protecting the people from

¹⁷ E. F. Gautier, *Sahara Algérien* (Paris, 1908). H. S. W. Edwardes, *Geographical Journal* (1919), LIII, 206. Col. Mangeot, *L'Afrique française*, 1922, p. 527.

¹⁸ H. S. W. Edwardes, *loc. cit.* Nigeria, *Annual Report*, 1921. E. W. Bovill, *Journal of the African Society* (1921), XX, 181-5, 259 *et seq.* Sir Hector Duff, *Cotton Growing in Nigeria* (London, 1921), pp. 4, 8. Col. Tilho, *Geographical Journal* (1920), LVI, 245. Hans Vischer, *Geographical Journal* (1909), XXXIII, 259.

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their own improvidence, which if left unchecked will inflict untold calamity upon posterity, is as urgent as ever . . . literally thousands of square miles of forest have disappeared since the War broke out'.¹⁹ Agreement has never been reached regarding the extent to which forest affects climate. It is however the common experience of man that trees conserve moisture and that the destruction of forest impoverishes the soil and causes increased aridity. Great as is the harm wrought by the shifting cultivator, he cannot be held wholly responsible for the shrinkage of rivers, lakes and wells on the huge scale which we find in the Western Sudan. Climatic change is undoubtedly playing its part, but man himself is aggravating the evil.

Geologists are disinclined to admit that the Sahara is encroaching on the Sudan, though they concede instances of local desiccation. They even maintain that the movement is in the contrary direction, and base their arguments on the occurrence of dead *erg* or fossil dunes in regions now lying south of the Sahara and enjoying a substantial rainfall.²⁰ These fossil dunes, which could not have been formed except under desert conditions, are widely distributed and seem to point unmistakably to a former southward extension of the Sahara far beyond its present limits. Their presence however in no way affects the conclusion that the present period is one of increasing aridity.

It has been established that the climate of many parts of the world has been subject to pulsations of wet and dry periods since the quaternary period. The Sudan was probably one of them.²¹ Neither in the existence, at some period of unknown remoteness, of desert conditions beyond their present limits nor in the overwhelming evidence of a now existing phase of progressive desiccation is there any proof that in the Sudan the distribution of desert, steppe and bush has changed seriously in the last fifteen hundred years. The Sudan affords no evidence that in historic times the Sahara differed greatly from its present condition.

Turning now to the Sahara itself we find that, like Barbary, it has a curious residual fauna. Crocodiles have been found in at least three parts of the desert—the Wad Mihero, the Ahaggar Mountains and Enedi. The cobra survives in Biskra, Figuig and Gurara. Cat-fish are a comparatively common feature of desert pools. The Ahaggar

¹⁹ Nigeria, *Governor's Annual Address* (Lagos, 1924), p. 121

²⁰ E. F. Gautier, *Sahara algérien* (Paris, 1908). R. Chudeau, *Sahara soudanais* (Paris, 1909), pp. 244–55. *Annales de Géographie* (1916), xxv, 455.

²¹ Henri Hubert, *Annales de Géographie* (1917), xxvi, 384.

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Mountains harbour Barbary sheep.²² These and other species now surviving in the Sahara, all belonging strictly to more humid regions, provide somewhat spectacular evidence of climatic change. But like the extensive remains of a large sedentary population which once inhabited the Algerian Sahara they have no bearing on the question of change since the dawn of history.

Throughout the rapidly growing literature of Saharan travel there are constant references to advancing sand and shrinking oases. Ancient caravan routes are being abandoned owing to failure of wells. Recently deserted oases are common incidents of travel, and tales of others which have been recently lost are only less frequent. The common explanation of these phenomena is desiccation due to climatic change. This certainly seems to be a contributory factor, but that man himself is the chief cause is a conclusion at which all familiar with the Sahara eventually arrive.

The decay of the oases in the last few decades has been principally due to political unrest. Small though the population be, the resources of the Sahara are strained to their utmost to support it. Starvation and plenty are divided by a narrow and highly sensitive margin which quickly disappears with any reduction of the already inadequate water supply.

The people of the desert are extremely virile and live permanently on a war footing. They cultivate corn and dates in the oases on a modest scale but they are mostly pastoral nomads with highly developed predatory instincts. Their camels and their own hardihood have made them the most mobile people in the world. When the meagre desert pastures begin to fail the community starts moving and conflicts are inevitable. To the small sedentary cultivators of the oases the nomads have always been a constant menace. At any moment the dreaded *razzia* may fall upon them with the inevitable result that they lose their crops if not their lives. This general condition of insecurity—the French have now almost put an end to it—has resulted in the cultivators abandoning to the desert all but the minimum area necessary to their needs. For the same reason there is, or was until recently, a marked reluctance to sink new wells and to repair the old ones. Under such conditions frequent opportunities occur for the desert to encroach on

²² Conrad Kilian, *Au Hoggar* (Paris, 1925), pp. 106, 139-43, 158, 165, 178. W. J. Harding King, *Geographical Journal* (1919), LIII, 49. E. F. Gautier, *Le Sahara* (Paris, 1928), pp. 61-7.

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the cultivable areas. Often in the recent past the whole population of an oasis has been wiped out, with the inevitable result that the desert has crept in and completely enveloped the gardens. A striking example of desert encroachment was afforded by the short-sighted action of the French in attempting to drive the Tuareg out of the Air Mountains after the rebellion of 1917. 'Depopulation allowed the desert to encroach' wrote a recent traveller. 'Walls fell in, gardens went out of tillage and the livestock of the country, more especially the camel herds, were reduced to a fraction of what they had been'.²³

The abolition of the slave trade has also had an unfavourable effect on the economic conditions of life in the desert. The oases used to be cultivated principally by negro labour imported from the Sudan. With the cessation of the slave traffic the negro population of the Sahara has shrunk, and with it the oases. The decay of the caravan routes may be traced to political insecurity and to the diversion of trade to newly opened European channels. This is particularly true of the ancient salt traffic, which has lost nearly all its former importance.

The difficult task of controlling this vast desert region is one to which the French have applied themselves with vigour, and a remarkable degree of success has been attained. By enforcing tranquillity on the nomads fresh life has been infused into the oases, and a tendency to adopt a sedentary life has even been observed. That political insecurity has been the chief cause of the shrinkage of the oases is established by the fact that with the return to settled conditions not only is the encroachment of the desert being arrested but lost oases are being reclaimed.

Man, who is but a secondary cause of desiccation in the Sudan, must be held primarily responsible for the continued activity of the same process in the Sahara. In both regions climatic change is a factor of greater or lesser importance; but conclusive evidence that it has produced a material change in the general character of the desert since the Romans first attempted its exploration is still wanting.

This view, which has the support of those familiar with the desert today, is fully confirmed by the classical authors. Its present condition answers closely to the description of Herodotus, who says: 'Above the coast-line and the country inhabited by the maritime tribes Libya is full of wild beasts; while beyond the wild beast region there is a tract which is wholly sand, very scant of water, and utterly and entirely a

²³ F. R. Rodd, *People of the Veil* (London, 1926), p. 361.

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desert'.²⁴ He returns more than once to the utter desolation of the desert.²⁵ Gsell quotes similar passages from Theophrastus, Strabo, Diodorus Siculus, Pomponius Mela and Seneca.²⁶

We are very ignorant about the relationship which existed between Barbary and the Sudan during the Carthaginian and Roman periods. But evidence is not wanting that in these very early times there was considerable traffic in the desert. There is reason to believe that the desert was crossed in Punic times before the camel had been introduced into Africa. It is very doubtful whether such a journey could be made under those conditions today. It seems likely therefore that the caravan routes were not then so ill provided with water as they are now. The slightly increased rainfall which Gsell thinks North Africa may possibly have enjoyed in Roman times perhaps extended into the desert, affording better facilities for watering and providing more extensive pastures.

So much may be conceded without admitting any material change in the general distribution of desert and steppe in northern Africa. As our knowledge of Barbary, of the Sudan and of the Sahara increases, the more reason have we to believe that little change has taken place in any one of these regions since the dawn of history. The successive waves of invaders which swept across North Africa experienced climatic conditions closely similar to those of today. To each the Sahara presented an all but insuperable barrier to intercourse with the Sudan. At no period does man appear to have contemplated the crossing of the Sahara except as an enterprise involving grave risks and demanding the greatest hardihood.

²⁴ Herodotus, II, 32.

²⁵ Ibid. IV, 181, 185.

²⁶ Gsell, *op. cit.* vol. I, p. 57.

Zimbabwe

based on the British Association report

by G. CATON-THOMPSON

IT is now 24 years since Dr Randall MacIver investigated the problems of the origin and age of the Southern Rhodesian ruins. Nothing of any scientific consequence has since been added to the evidence on the purely archaeological side, with the exception of the partial excavation of the so-called Western Temple of the Zimbabwe Acropolis.

In physical anthropology, we had, in 1924, Sir Arthur Keith's report on four ancient skeletons found in gold mines, and one from Zimbabwe itself.¹ They were of Bantu type, but do they represent the original miners, and how old are they?

Dr MacIver is the only competent trained archaeologist who has contributed to the subject; but while I have relied on his facts as accurate, at no time have I allowed his conclusions to influence my judgment on the evidence which he has produced. In numerous ruins in Mashonaland and Matabeleland Dr MacIver found, at levels considerably lower than the foundation courses of the containing walls, datable Oriental and European imports of medieval age, consisting of Chinese porcelain, Persian faience, Indian and Venetian beads, Arab glass. These facts were, in his opinion, conclusive evidence that the buildings were medieval. With these dated imports was a quantity of native African pottery, metal work and other objects, differing little from those still made by local Bantu tribes today. No object datable as earlier than early medieval was found by him, or had indeed ever been found by the too active amateurs who had preceded him, who had had the pick of the untouched ground, and who clung on very dubious evidence to the idea of a Phoenician or even older South Arabian origin.

A structural peculiarity of the great ruins at Zimbabwe, situated in Mashonaland, about 170 miles south of Salisbury, is the presence in

¹ *Procs. Rhodesia Sci. Soc.* (1924) XXIII, 20-22.

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many of the enclosures of hard floors of crushed granite cement, contemporary with the walls: these, when intact, would absolutely prevent objects on the floors from sinking to a lower level. Dr MacIver saw the stratigraphical importance of these floors, and in Zimbabwe's Elliptical Temple alone he dug seven test trenches through them, finding native objects identical with those above the floor and imported articles which could be dated as medieval.

The seventh test, in enclosure 15, has become historic. Mr R.N. Hall had, in previous years, all but cleared out this enclosure, removing 12 vertical feet of deposits from above the original cement floor, at which level he stopped. His published section shows Nankin china, Arab glass and native pottery in what he calls his fifth stratum from the top—a stratum immediately overlying the original cement floor, and from this fact he inferred its later date.²

Accidentally or otherwise, Mr Hall left a small section standing. This was found and critically examined by Dr MacIver, who asserted that Hall's stratigraphy was mistaken, and that his fifth layer containing the medieval china and glass was, in reality, not a separate stratum, but an integral part of the cement foundations of a hut, forming a stratigraphical unit with the cement floor on which it rested. That being so, the cement would be dated by the objects found in it as medieval. Dr MacIver carried on excavation at this spot through the cement floor down to bedrock five feet or so below. He got no datable objects; but a definite stratum of ash and sand was encountered, its level being some feet below the level of the foundation courses of the temple walls. This lowest stratum contained coiled bronze wire bangles, native pottery, and spindle whorls, similar to the same objects found associated with the mediievally dated products at higher levels.³

On inference, therefore, and in conjunction with his positive evidence Dr MacIver urged the approximate synchronism of the two within a century or two. Certain ambiguous features were, however, pointed out at the time with some force by Dr MacIver's critics,⁴ who demanded a clearer definition of the exact relationship of the lowest occupation layers, beneath the cement floors, to the main walls of the buildings:

² *Great Zimbabwe*, p. 103.

³ *Medieval Rhodesia*, pp. 61-4.

⁴ *Geographical Journal* (April 1906) xxvii, 344-5.

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were they, in spite of their lower level, contemporary, or were they earlier? At Zimbabwe, that lowest level in enclosure 15 was never dated, for the mediievally dated objects lay very considerably above it, and the similarity of simple articles found in it to those at higher levels is only an inferential, not a conclusive, argument for approximate contemporaneity. My chief object therefore has been directed towards checking the exact relationship between the lowest occupation layers (beneath the original cement floors) to the main walls of the buildings, and to test first the stratification over a wide continuous area, not only down to bottom, but to test it with particular reference to its behaviour in relation to the main walls,—in short to see if evidence could be collected proving the walls contemporary with a pre-medieval level; and, secondly, to check the results by means of excavations in the deepest undisturbed sections available in other areas, as well as by excavations vertically beneath some structure of unquestionable antiquity.

That programme may seem a very modest one, in view of the numerous lines of investigation which the problem invites, some of which Dr Frobenius has followed with such remarkable results. But I believe it to be a radical one, controlling, in a way nothing else is likely to equal, the dating evidence, and in pursuing it I have willingly sacrificed more spectacular work in favour of limited and methodical excavations, tying us for weeks on end to one small area. The work has been mainly a study in stratigraphy.

To fulfil the first part of this programme a site had to be found providing two essentials not easy to come by:—

- (1) A site unquestionably as old as Zimbabwe's Elliptical Temple.
- (2) A site showing an intact cement floor, and yet a site of sufficiently minor importance to warrant the inevitable destruction of that floor.

Dhlo-Dhlo, which I visited and tested on arrival in Rhodesia, failed under the first heading; the Zimbabwe Temple and Acropolis failed under the second.

In early March (1929) in a week of pitiless rain, in a wilderness of long, wet grass, I found the spot which seemed likely to meet the case—the Maund ruins, in the Valley of Ruins, Zimbabwe. (Plates II–III). The walls are ruinous, but show all the features characteristic of the Temple—the rounded bastioned entrances, with triangular grooves for support of stone jambs, the peculiar swing out of the bottom courses to form stepped approaches. Even Mr Hall, who believed in several

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different periods of building, was satisfied that these ruins belonged to the oldest group. As to previous disturbance, I was guided largely by the vegetation, which grows with peculiar luxuriance on disturbed soil ; here it was comparatively modest. I was not disappointed. An absolutely intact granite cement floor was found over practically the whole area. The stratification was as follows :—beneath a variable thickness of humus came 10 to 12 inches of a hard yellow, artificial cement, formed of pulverized granite ; this had been laid as a floor by the original builders and it covered the bottom three or four courses of the walls. This cement, in turn, overlay 2 ft. 6 in. to 3 ft. of a brown-red soil of natural origin—hill wash—but containing charcoal, sherds, iron slag and other things. Upon this the walls were actually built, and we found this to be the case with only one exception in every one of the 29 segments of walls contained in the Maund ruins. Now an occupation layer resting on virgin soil and forming the very foundation upon which the builders based their walls was one of the things I most wished to study in great detail, and though it involved stripping the walls bare and clearing the ground down two or three feet lower than their bottom courses, I did not hesitate to do so. There was a fourth stratum, of considerable, though intermittent extent—a red dagga in great mounds, with the timber of huts in it in excellent preservation. The dagga structures appear to have been made by later occupants, but not much difference could be detected in the objects collected from them. (Plate IV).

The objects from the lowest stratum beneath the intact cement floor are as much *in situ* as any ever will be this side of heaven. One could not reasonably expect to find very much in such a position, but there was sufficient for our purpose. The pot-sherds, coarse red-brown ware, gritty with quartz particles, numbered 448 and were in small fragments. Of these about 40 were rims. Dr MacIver figures what appears to be similar pottery from the Niekerk ruins near Umtali. It is of interest to remember that he judges the Umtali-Niekerk-Inyanga group of ruins to be rather older than Zimbabwe. With this class of rough pottery was a small quantity of plain black graphite-polished ware indistinguishable from that found all through the higher levels. A disc-shaped spindle whorl in the same rough pottery was also found.

A certain amount of iron came also from this stratum. Lumps of iron slag were distributed throughout, though we found no smelting furnace ; some came from directly beneath the cement floor, some from the very bottom, resting on virgin soil, from this earliest pre-wall stratum. There were also a few iron weapons. Fragments of bangles

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of flat bronze wire coiled over grass fibre were also found. They are of the type familiar to everyone who has dug in the Rhodesian ruins and are found at all levels. Amongst these objects, clearly of native manufacture, there was nothing which could be dated. Are they older than the walls, even if we cannot say how much, or are they contemporary, in spite of being at a lower level and in a deposit upon which the walls rest?

At this point, where it might seem we had reached an archaeological impasse, the Maund ruins provided material in this same stratum for another line of reasoning.

Mr R. N. Hall,⁵ has recorded that in the Elliptical Temple (plate 1)—situated less than 300 yds. from the Maund ruins—were found curious stone pavements of uncertain purpose underlying the granite cement floors. One such still remains alongside the Conical Tower.

It was therefore interesting to find, when excavating the lowest stratum in the Maund ruins, that narrow pavements of thin granite slabs had been similarly laid down in several of the enclosures. Plate IV shows one of them, stripped of the overlying 10 in. granite cement floor, mysteriously connecting two enclosures through a bastioned doorway. Their levels in some cases raised interesting and teasing problems in stratigraphy; but after weighing the possibility that these pavements might belong to a period of occupation older than the existing buildings with their cement floors; and with due consideration for alternative interpretation of their purpose, we came to the conclusion that these pavements were laid for the temporary convenience of the workmen erecting the walls, in what was a very muddy locality—the cement flooring which covered them is itself an expedient to keep dry in a land of very heavy rainfall. If this interpretation is correct it destroys the idea of an occupation before the walls were built.

The evidence from the Maund ruins may therefore be interpreted as follows:—

(1) No case can be established for an occupation earlier than the building period.

(2) The objects of this period excavated from a sealed deposit include iron weapons, spearheads, arrowheads and an axe, also bronze wire bangles, typically Bantu in character.

(3) Prior to the construction of the walls building pavements were laid down.

⁵ *Great Zimbabwe*, p. 239: 'From the base of the northern wall of this section to the centre of this area is a cemented floor laid on a pavement of blocks'.

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(4) No article was found at any level which was not of native manufacture, nor were there any imported articles to give a dating clue. These came from our work in other parts of Zimbabwe and from five distant sites, three of which lie in the Sabi Reserve in Eastern Mashonaland.

No one has hitherto attempted to lay bare the middens of the original inhabitants of the Zimbabwe Acropolis (pl. II), and I was anxious to know at what depth they lay and to help out the dating problem more positively than the earliest stratum in the Maund had enabled me to do. In one case, after good iron implements and two fragments of a soapstone bowl had been found in the top 5 ft., the strata passed down irregularly at about 12 ft. 6 in. into black midden, with quantities of split animal bones, chiefly ox, of no very ancient aspect, and sherds; between 13 ft. 6 in. and 15 ft. came two pots of undecorated native ware, six pottery phalli and fragments of bronze wire bangles. At 18 ft. on rock bottom were two more pots which resembled ordinary Bantu pots.

Another test trench, carried alongside the second terrace wall from the top, was even more interesting. Under a terrace filling of red dagga clay and rough granite blocks, at 8 ft. beneath the surface, a curious stone structure was encountered, completely buried in the terrace levelling process and therefore earlier. It measured 10 ft. long by 4 ft. wide and 6 ft. high and was solid except for a narrow 5 in. vertical vent. Its purpose remains a mystery. The deposit round it was burnt in places, but no trace of fire could be detected upon the stones, and its solidity precludes its use as kiln or furnace.

But what concerns us stratigraphically is the fact that it rested on a foundation of roughly laid stones, and that round it a paving of thin granite slabs lying at from 15 ft. to 17 ft. beneath the surface, as in the Maund ruins and the sacred enclosure of the Conical Tower, served it on the three sides which could be cleared. The objects found in the underlying stratum are therefore as much from a sealed deposit as in the Maund, but at nearly five times as great a depth. It yielded fragments of iron tools, iron slag, a white porcelain bead threaded on thin copper wire, and 80 other beads in coloured opaque glass—blue, green, yellow, red, black—of types found in many of the Rhodesian ruins.

That they represent the earliest period of Acropolis débris, I have no doubt at all. They lie in a stratum on rock-bottom, under 24 feet of superposed débris. The depth means little in itself; but these beads and other objects were already there when people using

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the same building pavements that we found in the Maund ruins built a stone structure upon the midden deposit which contained them. This structure in turn must antedate the stone and dagga filling which buried it to a depth of 8 feet. Finally that stone and dagga filling is synchronous with the formation of a terrace with a solid retaining wall. This evidence is in harmony with that obtained in 1915 inside the main wall of the Acropolis, when a section of the infilling, about 17 feet thick, was cleared and Bantu pottery and iron implements were discovered down to bottom.⁶ These excavations are seen in plate II.

In the good old days before geology and evolution upset everything it was, I believe, stoutly maintained that fossils, when found in deposits suggestive of an age greater than B.C. 4004 had been placed there by the devil to deceive mankind. Possibly he also placed those glass beads in the most ancient deposits at Zimbabwe; no one else could have done so except the original inhabitants. However, despite this evidence in the Maund ruins and on the Acropolis, in order to make sure that no older deposits existed in the neighbourhood of the Elliptical Temple (itself too ransacked to provide safe data), we dug an extensive series of trenches outside its girdle wall. The evidence was everywhere the same; coiled wire bangles, spindle whorls in pottery and soapstone, phalli, fragments of soapstone bowls, and iron tools were found, with imported beads down to bedrock, similar to those from the 24 ft. level sealed midden on the Acropolis. One last endeavour was made to clinch the matter finally and incontrovertibly. It is obvious that any object of racial or temporal stamp found *in situ* in undisturbed deposits vertically beneath an original wall would settle the matter, even to the average layman unfamiliar with the intricacies of archaeological evidence.

Around the Conical Tower at Zimbabwe have rallied all the theories of Semitic origin; it was fitting, therefore, that this famous structure should submit to a practical test which has never been before attempted. With the consent of the Rhodesian Government, a tunnel was driven right through from side to side, exposing, on a width of 3 ft. to 4 ft., the underlying deposits down to bedrock. My idea that the Tower might be the superstructure of a grave is disposed of. It rests, without any prepared foundation whatsoever on 6 ft. odd of natural sandy deposit overlying the granite. The bottom 5 ft. 6 in. or so of this is sandy yellow granite subsoil similar to that we found underlying the Maund ruins.

⁶ See Mr Douslin's paper in the Proceedings of the Rhodesia Scientific Association, June 1921-22.

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The first thing found was a beautiful early Stone Age implement (a 'coup-de-poing'). I present it to those who believe in Zimbabwe's great antiquity. Another crude implement showed that the soil had been undisturbed since Palaeolithic times. Above this undisturbed soil was a thin layer of reddish hillwash, and on this the Tower rested. Every inch of this reddish soil was washed and sieved; it yielded a small iron band, a minute gold bead, traces of a wire bangle and a small sherd of the usual black polished native pottery. The purpose of the Tower remains as obscure as ever. Viewed from below its workmanship is as haphazard as most of the buildings. With level granite rock only 6 ft. below the builders laid their foundations on sand. They did not level them, and on a diameter of 18 ft. 4 in. there is a fall of 1.19 ft. That this is not due to later subsidence is shown by the fact that thicker courses, to correct the error in the ground courses, have been introduced higher up the Tower. This is hardly the work of high civilization and confirms Mr J. F. Schofield's architectural estimate.⁷

On the Sabi river watershed, some 90 miles north-east of Zimbabwe, the expedition examined the Matindere and Mshosho ruins, and also Chiwona, a fortified terraced kopje only reported last November, and previously seen by only four white people. These sites, which we planned, yielded objects similar to those from Zimbabwe. On the stratigraphical evidence of the bead imports found in them, I would suggest that Chiwona is the oldest, whilst Matindere may be chronologically linked with Dho-Dhlo in Matabeleland, which provided good evidence for a 16th cent. A.D. building date.

An interesting and extensive site, Chibvumani, lying about 60 miles east of Zimbabwe, was also planned and tested. Events there appear to have followed the same course as at Zimbabwe, the old building being in places completely buried beneath mounds of red dagga clay introduced by later inhabitants, and which has raised the latest occupation level some 9-10 ft. above that of the original wall-builders. Here again the bed-rock stratum yielded glass imported beads similar to the oldest series at Zimbabwe.

Our final excavations took place at Dhlo-Dhlo, an attractive little fortress about 40 miles from Bulawayo (plate v), examined in 1905 by Dr MacIver. Choosing for my examination the same enclosure

⁷ J. F. Schofield, 'Zimbabwe: a Critical Examination of the Building Methods Employed'. *South African Journal of Science* (Dec. 1926), XXIII, 971-86.

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that yielded him the evidence for assigning a 16th cent. A.D. or later date to the building⁸ we cleared a section down to bedrock, about 14 ft. beneath the latest occupation layer. Immediately overlying the granite rests what appears to be a true Stone-Age stratum, extraordinarily rich in small quartz flakes, associated with a few sherds of rough pottery. Above this layer we passed into one indicative of advanced civilization : a burnt hut, its contents surprisingly intact beneath the cushion formed by its charred thatch roof, enabled study, for the first time in the history of excavations in Rhodesia, of the associated articles of everyday life in a native hut of antiquity. On a smooth cemented floor, supporting a semicircular cement platform in two tiers, designed to accommodate the domestic pots (a similar provision is still in vogue amongst the Mashona tribes), lay nine unbroken jars and bowls, in hand-made, well-finished and polished red and black ware. With them was a broken, but complete porcelain bowl and a square green glass bottle (plate vi). A quantity of blue glass beads, and bronze wire bangles and anklets studded with glass beads were associated with the charred remains of the two occupants of the hut ; so great had been the heat, that beads and metal had, in places, fused upon the bones. Iron objects were also recovered. Although this hut vertically underlies the stratum dated by Dr MacIver as not earlier than the 16th cent., I have as yet reached no certainty that it antedates that period. Experts differ, and whereas one assigns the Chinese bowl to late Ming (17th cent.), another suggests an early Ming dating (12th cent.). In either case it must be remembered that imported articles, probably highly valued by their owners, can only provide an estimate for the *earliest* dating of the stratum in which they are found ; they can give no check whatsoever on the latest dating limit.

It is therefore unfortunate that the idea has been spread in the unscientific press that, on the doubtful evidence of certain imported beads, I suggest a date as early as 600-900 A.D. for the oldest buildings at Zimbabwe and elsewhere. I have suggested no such thing—the quality of my archaeological evidence is not sufficiently clear to warrant it, though on other lines of evidence it seems probable enough.

My statement was to the effect that, contrary to the experience of Dr MacIver, only two fragments of Celadon glaze were found at Zimbabwe, but these are older than those unearthed previously. They are said by the British Museum to be Sung period (10th-13th cent. A.D.)

⁸ *Medieval Rhodesia*, pp. 42-3.

PLATE I



ZIMBABWE. THE ELLIPTICAL TEMPLE AND THE VALLEY OF RUINS
Ph. Union of South Africa Air Force

PLATE II



ZIMBABWE. THE ACROPOLIS, SHOWING ON THE LEFT THE MASSIVE WALL OF THE 'WESTERN TEMPLE', WITH RESTORED TURRETS
Ph Union of South Africa Air Force

PLATE III

RED DAGGA CLAY OF
LATER OCCUPANTS

GRAVELL CEMENT
FLOOR OF ORIGINAL
INHABITANTS

ILLUVIAL STRATUM
UNDERLYING WALLS



ZIMBABWE VIEW IN THE MAUND RUINS, SHOWING DEPOSITS IN SECTION, WITH A STONE PAVEMENT AT THE BASE

Pl. Kathleen Kenyon

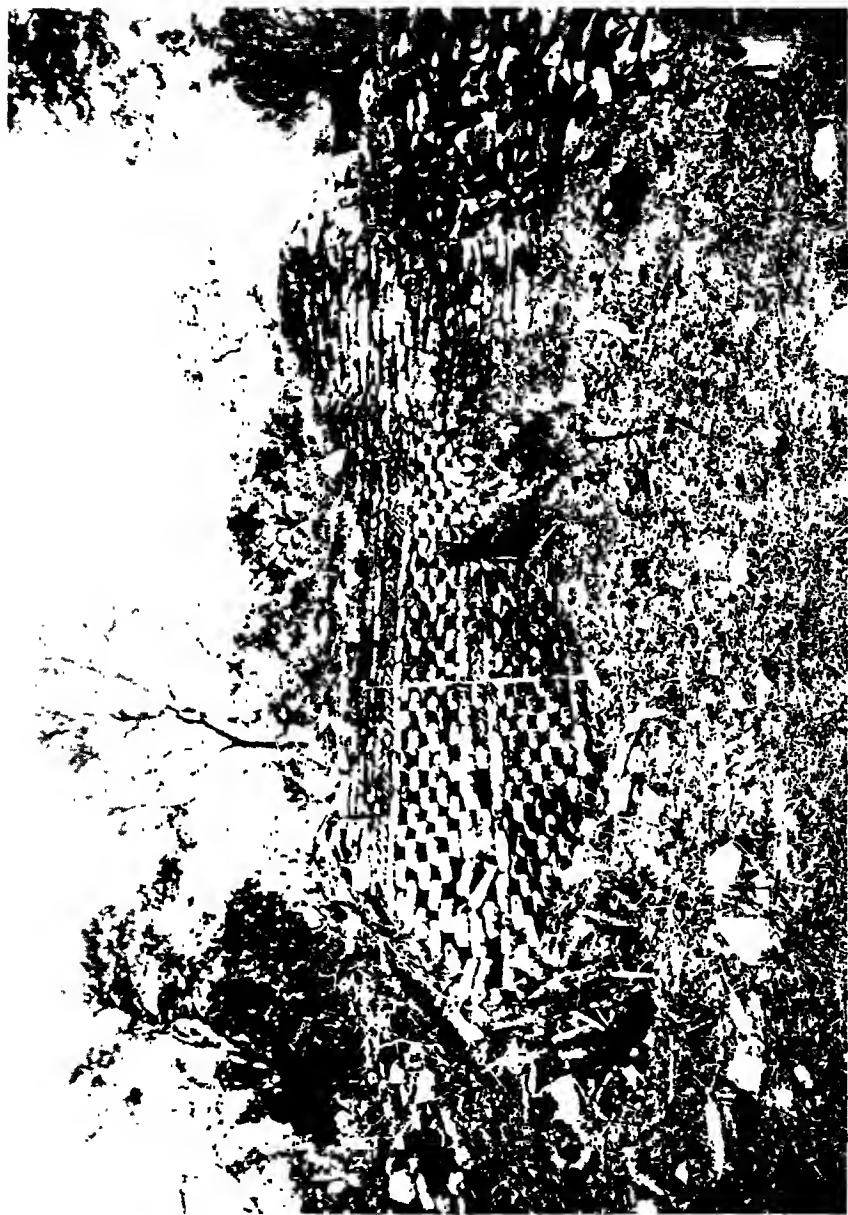
PLATE IV



ZIMBABWE THE MAUND RUINS, SHOWING A STONE PAVEMENT STRIPPED OF THE
OVERLYING CEMENT FLOOR STONE DOOR-JAMB IN DISTANCE

Ph Kathleen Kenyon

PLATE V



DULO DULO WALL WITH CHESS BOARD AND HERRING BONE DECORATIONS THIS WALL IS LATER THAN THE
HUT DEPOSIT WITH MING BOWL

Pl. Kathleen Kenyon

PLATE VI



DHLO DHLO - CONTENTS OF A NAHVE HUT DATED TO MEDIEVAL TIMES BY A MING BOWL (LYING ON LEFT-HAND JAR) AND A GLASS BOTTLE. A QUANTITY OF WIRE RANGLES STUDDED WITH BEADS IS VISIBLE BEHIND

Ph. Kathleen Kenyon

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A full report on the beads has not yet been made, but Mr Horace Beck, to whom they have been submitted, states that they include types from South India, definitely considered to be not later there than 900 A.D. Other beads are similar to some found in the remains of villages in Malaya and Borneo, where they may belong to a period as remote as 600 A.D. But Mr Beck would be the first to urge caution in the matter of dating beads : the study of them is still in its infancy, and a type of bead, once it has become popular, is likely to be repeated and copied for generations. In any case the date of a bead (were this certain) in its home of origin is not necessarily its date in its home of import. All that may with reasonable regard for the probabilities be said on the existing evidence is that the building of stone structures in Southern Rhodesia—it must be remembered there are more than 500 of them—appears to cover a period of considerable length ; that the earliest cannot on any available archaeological evidence be placed as earlier than the 10th cent., and may be any amount later ; and that the latest cannot, on any available archaeological evidence be placed as earlier than the Ming period, 12th cent., and may be—and almost certainly are—as late as the 16th cent.

It is inconceivable to me, now I have studied the ruins, how a theory of Semitic or civilized origin could ever have been formulated. Every detail in the haphazard building, every detail in the plan, every detail in the contents, apart from imports, appears to me to be typically African Bantu. It is also inconceivable to me how a theory of antiquity, in the sense of Oriental archaeology, could ever have been formulated by observant people. The structure of the buildings is such that not one stone would be standing on another in a period reckoned in millennia and not centuries.

I have only touched on the evidence in crude outline, but I affirm, both in my own work and on that of my predecessors—Bent, Hall, MacIver, Douslin—that we have no evidence whatsoever for a date of great antiquity. Had Dr Randall MacIver never set foot in Rhodesia, had a medieval date never before been hinted at, my own excavations, concentrated as they have been on this question of the earliest date for the earliest intact deposits, would have led me to within a century or two of the same conclusion.

The German Excavations at Ctesiphon

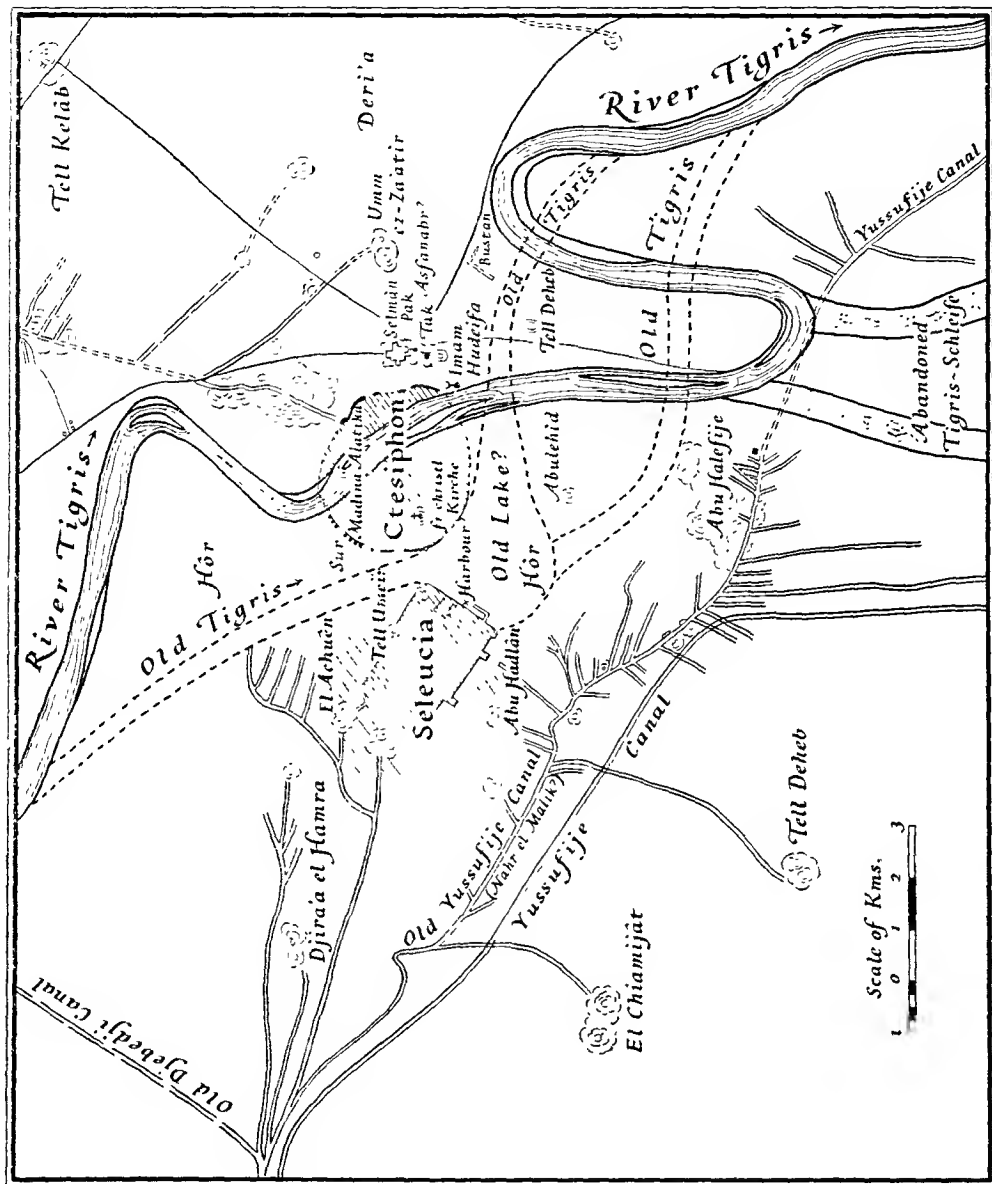
by OSCAR REUTHER*

IN the autumn of 1928 a German archaeological expedition began to excavate the site of Ctesiphon, the capital of the Sassanid empire. Two years earlier the Deutsche Orientgesellschaft, which had successfully made excavations at Babylon, Assur, Farah and Warka, was informed by the Iraq Ministry of Education that the help of German archaeologists in carrying out research would be welcomed. The Society thereupon agreed to co-operate with the *Notgemeinschaft der Deutschen Wissenschaft* in the excavation of Ctesiphon and Seleucia.

Hitherto archaeological interest in Iraq had been almost entirely confined to the Babylonian and Assyrian worlds. Then, after the importance of Samarra had been made clear through the investigations of Viollet and of Gertrude Bell, the German scholars Sarre and Herzfeld began excavations there which revealed early Islamic art and culture. But no one had attempted to obtain evidence from sites in Iraq as to the thousand years in which the conflict raged on the Euphrates and Tigris between East and West, between the Orient and Hellenism. Any inquiry into this period, so important for the development of eastern culture, must obviously select for excavation Ctesiphon and Seleucia. These were the two principal cities of the enormous empire which was centred in Babylon during this time ; the one an outpost of conquering Greece in the East, the other the centre of Sassanid royal power, which opposed the Hellenism of the West with all the oriental traditions of the ancient Iranian kingdom. Both were alike symbolic of the two conflicting worlds which faced each other on the Tigris. Moreover the sites might be expected to furnish traces both of the intermediate Parthian period and also of the transition to early Islamic art and culture.

Apart from such questions, the historical importance of these towns promised topographical enlightenment. The ruins on either bank

* Translated by Roland G. Austin, Glasgow University. The transliteration of proper names here and on the map is that of the original version.



MAP OF THE DISTRICT ROUND CTESIPHON AND SELEUCIA

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of the Tigris had been investigated and photographed by Herzfeld, who had gone beyond his predecessors in his inferences from the material available for surface-observation. Also, Maximilian Streck had tried, from sources in ancient and Arabic literature, to form a topographical picture of Seleucia, Ctesiphon, and the Islamic cities which succeeded them. But excavation alone could give a definite basis of information.

In 301 B.C., when Seleucus I (Nicator) won the battle of Ipsos in the wars of Alexander's successors, he secured possession of Asia Minor, and about the same time founded Seleucia as the capital of his kingdom, which stretched from the Mediterranean to India. The city stood on the Tigris, 60 kilometres north-east of Babylon. It was not long a royal residence, for Seleucus himself soon moved the seat of his government to Syria. But its position was favourable for development, standing as it did at the entrance to the Nahr al Malik, the royal ship-canal joining the Euphrates and Tigris. It became the chief entrepôt of Asia Minor, displacing Babylon, then fast decaying, and outstripping Syrian Antioch, though this city was the actual capital, and in Pliny's days, the first century after Christ, it still ranked with Rome and Alexandria themselves. In the middle of the second century B.C. the Parthian Arsacids robbed the Seleucids of the eastern part of their empire; and although Seleucia at first showed no signs of friendliness to its new overlords, and indeed made common cause with Antiochus VII, they allowed its Greek constitution or *politia* to remain, and permitted its own laws and prerogative of minting. They also decided not to reside in Seleucia or to garrison it, but put a fortified camp opposite on the east bank of the Tigris, at the village of Ctesiphon, so as to ensure supervision of the city. This camp later became the royal residence. Thus from the middle of the first century B.C. these two cities faced each other—the Greek centre of commerce with its motley population, and the Parthian garrison-town with its royal residence. Some of Seleucia's importance vanished when the Parthian kings decided to punish it for its seven-years' revolt from 36 to 43 A.D.; as far as was possible they checked its trade, and soon afterwards a rival city sprang up near it named Vologesocerta, after its founder Vologeses I. Yet in the second century A.D. Seleucia must still have surpassed Ctesiphon in importance and size, until in 165 the legatus Avidius Cassius, leader of Lucius Verus' forces against the Parthians, razed it to the ground. Ctesiphon now had no rival, and though it too was laid waste by Avidius Cassius and for a second time in the Parthian war of Septimius Severus, it was chosen again by Ardashir the first

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Sassanid to be the capital of the new Persian empire. Under his rule and that of his successor, and especially under the two Sapers and Chosroes I Anusharwan (531-79), the city spread far beyond its original boundaries. Beside the old city, the Madina al atiqā, where the palace of the Arsacids was replaced by the 'white castle', a new quarter arose named Asfanabr with its famous palace Iwan-i-Khosrau, and other towns grew up round it. Ardashir had already founded on the west bank of the Tigris, quite near to Ctesiphon and on the site (it is supposed) where Seleucia had once stood, the city named after him Weh Ardashir. The native Semitic population of this town also called it Coche, and under the name Bahurasir it existed until the 13th century. Not far to the south of Ctesiphon Chosroes I built a new city, named Weh-Antioch-i-Khosrau, where he settled the exiled people of Syrian Antioch after conquering and destroying that place in 540 A.D. In 636, after the battle of Kadesiya, the Sassanid royal power fell, and Ctesiphon was conquered by Arabs under Sa'd ibn Abu Waqqas. By this time a whole group of cities, said to be seven in number, and known collectively by the Aramaic name Makhoze or Madinatha, lay in this region; afterwards the Arabs called them al Mada'in, or 'the cities'. Later the name al Mada'in was applied particularly to Ctesiphon itself, which lost its proud position after the Moslem conquest and ultimately became quite unimportant with the rise of Basra and Wâsit, and especially after Baghdad had been founded. Finally, the once flourishing district was entirely devastated by the Mongol hordes under Hulagu and Timur.

The site of Seleucia and Ctesiphon, hitherto assumed as definitely located, lies some forty kilometres to the south of Baghdad on either side of the Tigris, which just above this has many windings. Ctesiphon was thought to lie somewhere on the left bank near the imposing ruin of the Taq-i-Kisra, the 'Arch of Chosroes'. Near the mosque-tomb of Salman Pak, the legendary Barber of the Prophet, there lies the village of the same name in the middle of an approximately rectangular field of ruins extending northward from the Taq-i-Kisra. This village has grown considerably in recent years. Immediately to the west of this there is a second block of ruins, enclosed by a curving wall known to the natives as al Tuwaibah, and bounded on the south-west by the Tigris. Besides this there are mounds of ruins along the course of an ancient canal bed leading from the north towards Salman Pak and another canal, long since dry, running further to the east. But to the south, in the loop formed by the bend of the river, these ruins are less in evidence, for today much of the land has once more been put under cultivation. There can

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be seen, however, the ruins of a piece of wall forming the two arms of a right angle, the longer of which extends for 700 metres. This was once a rectangular enclosure, and the Tigris has washed away the other two sides. About a kilometre to the south-west of this wall (called by the Arabs Bustan al Kisra, 'the garden of Chosroes') there rises a square-shaped mound of ruins measuring 150 metres on each side, now known as Tell Dahab, 'the golden hill', or Khaznet al Kisra, 'the treasure-house of Chosroes'. The whole area, occupying some 20 square kilometres, is taken by Herzfeld to include the different settlements of Ctesiphon. In particular he locates in the region round Salman Pak the quarter called Asfanabr, where, according to Yaqubi and Ibn al Khatib, the Iwan-i-Khosrau stood. He thought to find the old city of Ctesiphon, the Madina al atiqā, in the portion enclosed by the wall Tuwaibah and bounded on the west by the Tigris.

Now the ancient sources are at one in stating that Seleucia lay over against Ctesiphon on the opposite bank, and therefore it was taken for granted that the ruins on what is today the west bank of the river are those of the Greek city. Especially noticeable here are the massive ruins of a wall, called es Sur by the natives, which sweeps round to the south-west from the Tigris. Rich had already realized that this wall formed a semicircle, and that another piece belonged to it which lies two kilometres further south, bending back from the Tigris. (Since he observed this, the river has washed away the greater part of the wall and the ground behind it at this point). The whole area enclosed by the wall and the Tigris is about 450 hectares. Today it is mostly cultivated, but a long mound is to be seen rising ten metres above the plain, known as Dja'aret al Baruda, 'the hill of the powder-mill'. A little patch of ruins lying by itself towards the west, with clear traces of brickwork, is called Qasr bint al Qadi, 'the castle of the Qadi's daughter'.

When the expedition reached the spot in 1928, serious doubts at once suggested themselves as to the accuracy of the identification of the ruins, hitherto unquestioned, with the respective sites of Seleucia and Ctesiphon. West of what had been claimed as the city-wall of Seleucia there lies a piece of low ground which for some years was an impassable swamp, but has now been drained and put under cultivation. The lines of a former river-bank are clearly recognizable, and beyond this rises Tell Umair, part of the extensive field of ruins where excavators from Michigan University have been engaged since 1927 in locating the ancient Akhshak-Upi, the Opis of the Greeks. From the lie of the land and from the pottery on the surface we were able to

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conjecture as early as October 1928 that the drained swamp was actually the former bed of the Tigris, and that the river must have altered its ancient course, and, flowing farther eastwards, must now pass right through Ctesiphon. All doubts were removed by a survey made by Dr Bachmann. The site which up till now has been taken as that of Seleucia is really the larger part of the old city of Ctesiphon, the *Madina al atiqā*. The walls of *es Sur* and of *Tuwaibah* belong to the oval enceinte enclosing it. Seleucia really lies on the other side of the old river-bed—a rectangular Hellenistic city, whose central part only was built and laid out like this, having later been surrounded by extensive suburbs. The eastern corner of the rectangle lies very close to the oval enceinte of Ctesiphon, and quite possibly there stood here, where the cities were nearest together, the stone bridge over the Tigris connecting them which is mentioned by ancient authorities. At the south-east side of the rectangle of Seleucia are indentations, which may have formed harbours. Within the city the two main streets, crossing in the middle, are plainly visible.

The Tigris seems to have broadened out towards the south, which corroborates a statement made by Malalas that at the confluence of the Tigris and the royal canal made from the Euphrates there was a lake. As Rich and Herzfeld had already conjectured, this canal, the *Nahr al Malik*, is doubtless to be identified with the *Yusufiye* canal, recently filled again with water, along which there are massive ancient dams and ruins of settlements. The latter were inhabited up to early Islamic times, as we know from pottery found there, and afterwards were apparently deserted. However, we cannot claim priority in discovering the real site of Seleucia. Mr O. G. S. Crawford informs me that Wing-Commander Insall, then stationed in Baghdad, had already (in 1928) detected the true state of the case from the air. The air-photograph taken by him plainly shows the network of streets in the ruined city near Tell Umair, crossing at right angles in the style of Hippodamus. Meanwhile the excavations made by Michigan University support the independent evidence of air-photography and land survey. The true position of Ctesiphon and Seleucia is now accurately ascertained.*

* These conclusions are firmly established, but the exact sequence of events is still rather obscure. We were flown over the site of Seleucia by Wing-Commander Insall on 17 October 1928, but he had already seen the rectangular plan many months before and identified it as Seleucia. A fresh air-photograph of the site was taken last December by the R.A.F., and we hope to publish this shortly, together with notes on it. We are in communication with Professor Waterman, of Michigan University, and with investigators at Baghdad who have kindly promised assistance.—EDITOR.

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This discovery meant a disappointment to us in so far as we now saw ourselves confined to Ctesiphon. On the other hand, important results ensued from the abandonment of the old erroneous views, as the basis for the topography of Ctesiphon and Seleucia as well as the cities which succeeded them was now completely changed. The old sources must now be reviewed from a new angle of criticism, both the ancient accounts and the work of Arabian geographers. As the excavations proceed further light will be thrown on the twin cities, whose picture is not yet clear in all its details, and we may hope that Americans and Germans will work together in friendly rivalry to solve this important problem.

The purpose of our work at Ctesiphon, as we supposed, was to make as comprehensive a preliminary survey as possible, and we did not aim at the complete excavation of any one point, *e.g.* the palace near the Taq-i-Kisra. We were more anxious to probe as many points of the site as we could, in order to know for certain what really was there and whether intensive operations were likely to prove fruitful. The field is large enough, for the area of Ctesiphon proper with its suburbs and surrounding settlements comes to more than 30 square kilometres.

One of our chief objectives was obviously the ruin near the Taq-i-Kisra. There is a tradition, of which the Iraq Arabs have never lost sight, that the gigantic barrel-vaulted hall (plates I-II) was the throne-room of the Sassanid palace, the Iwan-i-Khosrau. A different view was held by the European travellers of the 17th and 18th centuries, for they took the building to be a temple of the Sun, or else the work of a Roman emperor, misunderstanding the meaning of the name still locally used. However in 1796 the French doctor Olivier visited Iraq, and again recognized the ruin to be what it really is, the great hall of the royal palace in Ctesiphon. He likewise concluded that the building with the two wings of its façade, then both still standing, could not have formed the whole structure. But not until 1907-8, when Herzfeld made a plan of the mounds surrounding the Taq, was any effort made to reconstruct the inner palace. He based his attempt on these ruins and upon the still visible traces of vaulting and walls. He could reach no definite conclusion from the ground immediately surrounding the Taq, which was exceedingly flat. Excavation alone could bring further knowledge here, and in particular throw light on the ground-plan of the building. Hopes were also entertained of finding remains of those decorations so extravagantly described by the Arabic writers. Naturally the condition of the ruins still standing called for great caution, especially that of the

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south wing of the façade which was leaning forward. In 1888 the north wing of the façade collapsed, with the front arch of the hall, and since then further dilapidation has occurred. New fissures have formed, part of the vaulting has fallen, and a portion of the north wall of the hall has become detached. To prevent any extension of the subsidence, which, as Mr Clay has ascertained, is due to badly laid foundations, the Department of Public Works made efforts to strengthen the southern wing of the façade by means of a supporting concrete wall. Meanwhile we must wait for time to test the durability of this expedient.

In these circumstances we could not think of any complete excavation of the ruins in the narrow compass of the Taq. We could only venture on soundings with narrow trenches, and these were carefully filled in after photographs had been taken. In this way we were enabled to ascertain the ground-plan of the southern part of the building of Iwan, and of the groups of rooms adjoining the great hall on the west; and, although we found the whole building far more ruinous than we had expected, we succeeded in obtaining starting-points for a reconstruction. The walls have been broken down, leaving scanty remnants of the foundations, so that we could only trace the trenches where the latter lay. In the angle formed by the southern wall of the great hall with the façade still standing, there was an L-shaped vaulted corridor, enclosing two sides of a rectangular chamber of 17.43 metres by 34.60. The springers (*Ansätze*) of the vaulting in the corridor can still be seen in the existing building. The eastern arm, which ran behind the façade wall, was covered by a single round-arched barrel-vault, the northern arm along the south wall of the great hall by four short barrels on cross-arches parallel to it. The chamber itself, which this corridor separates from the great hall, was also barrel-vaulted, and we discovered a broken fragment of the vaulting on the ground. On the west side of the great hall there was a series of smaller rooms, and at the back of these an enormous chamber of the same breadth, that is 25.85 metres, and 38.05 metres long; no doubt this had been likewise vaulted with one barrel. This was entered by the door in the end wall of the great hall, from which one had to pass through a cross-passage 3.52 metres wide and an ante-room 9.25 metres long and 6.72 wide, at whose sides lay smaller rooms. At the southern extremity of this group of chambers, which at once connected and separated the two chief apartments of the palace, there was a square-shaped room which the walls show to have been 17.20 metres broad; this is equal to the breadth of the southern side-chamber of the great

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hall, and it must have had a domed vault. By extending the line of the walls as ascertained by excavation, assuming also that the arrangement of the whole is symmetrically repeated on the north side, we can reconstruct a ground-plan as follows. Placed axially, one behind the other, are two rows of three barrel-vaulted elongated rooms, of which the middle ones are distinguished by greater breadth and height and are separated by corridors from those at the side. A belt of smaller rooms on the transverse axis intersects the structural design, which forms a compact edifice on a rectangular ground-plan. This reconstruction may perhaps appear bold in view of the scanty nature of definite evidence from the excavations, but it is a necessary assumption, and the continuance of the work will show if it is substantially correct.

Before any excavation was begun, we could assume from the ground-relief that opposite the Taq with its winged façade there must have stood a corresponding building on the eastern side of a great court. Herzfeld was responsible for this conjecture, and we have confirmed it by tracing the line of the foundations. As on the west side of the court, a wide barrel-vaulted hall opened out between two façade-walls. So far we have not ascertained any more. The intended symmetry of the whole plan is clear: two structures, built on like principles, stood over against each other, between them enclosing the great court of the palace with their lofty frontals opening in the middle in wide parabolic arches. In essentials this plan was later adopted on a smaller scale in the side-courts of the early Islamic palace of Ukhaidir. Further excavation will tell us how the court was bounded on the north and south, though we still have to solve the problem as to which side contained the main entrance to the palace.

So far we have made clear the ground-plan of a part only of the vast lay-out of the palace of Iwan, but nevertheless a very important part. Further operations will give us definite information of the whole, for it is now clear at what points we must begin.

We have found nothing of the façade decorations. Such architectural parts as capitals, architraves (*Gebälke*), archivolts, etc., were executed in stucco upon the brickwork, as is shown by some scanty remains of plastering still clinging to the south façade. In process of time the stucco has peeled off and crumbled into dust. The remains of the fittings of the interior are also very slight, as the palace was systematically looted even before it was partially dismantled in Abbasid days. Anything that could be used at all for new buildings was removed, and in particular the costly mural facings of coloured marble and the

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glass-mosaic of the vaulted ceilings, of which only fragments were to be found among the débris. Where we could trace the floors, they were brick-paved and overlaid with repeated coatings of gypsum ; without doubt this is a poor substitute for marble flooring, which from our finds in other quarters of the palace we must assume once existed. Clearly, even before the palace was partially dismantled by the orders of the Abbasid Khalifs, it was used by the Arab conquerors for their own purposes after being despoiled of its valuable treasures.

To the south of the Taq, some 100 metres distant, there rises a mound of ruins forming a rectangular enclosure, called by the Arabs of today ad Dhabai, ' the hyena hill ', or Harim al Kisra. Its regular shape led Herzfeld to infer that it concealed some building belonging to the palace. Particularly noticeable were two narrow ridges running out towards the Taq, apparently continuing the side-lines of the massif. These enclosed a basin between them, and the eastern one lies in alignment with the façade of the Taq. Excavation has shown that there is a wall two metres thick, made of sun-dried bricks, supported by buttresses on its inner side, which encloses in the shape of a U the rectangular core of the hyena hill and the two ridges running out towards the Taq. There is a second wall made of burnt bricks lying close along it on the outside as if to cover and strengthen it. After a careful investigation of the eastern ridge we found a similar wall of baked brick on the inside as well, but here it is some distance from the sun-dried brick wall, and, like it, has supporting buttresses. To the north of the hyena hill this wall of burnt bricks bends westward, and doubtless must have continued on the west side of the hill and along the western ridge. The space between the walls of the ridges and the rectangle of the hyena hill was filled up with earth, thus forming a terrace some 60 to 100 metres in length, whence two arms stretched northward towards the Taq about 16 metres in breadth and 70 metres long. A building stood on this terrace, but the details of its configuration are not yet certain. All we can say is that the structure on the hyena hill was rectangular in ground-plan, and we may further conjecture that it had a courtyard in its northern part. Probably the two arms of the terrace formed narrow wings like galleries, enclosing between them a deep-sunken court. The approach to the main terrace southward must have run from this court, probably by means of an outside staircase surmounting a rise of some 6 metres. The building has been as completely destroyed as the portions of the palace of Iwan which abut on the Taq. Its walls have been broken down right to the base of the foundations, so that we

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could only ascertain their course by following the foundation-trenches ; the wall of sun-dried bricks, however, has been allowed to remain, as it contained no potential building material. But it seems as if its destruction followed immediately on the spoliation of its treasures, which will explain why we have found much more of them here than in the Iwan.

November brought heavy rains, so that we could pick up splinters of coloured marble, little cubes of bright glass, and fragments of shaped stucco on the surface of the eastern ridge. By means of cautious scraping on its eastern slopes, to no great depth, we came upon large quantities of stucco, which must have covered the outer frontal and have been thrown away as valueless at its dismantling. Most of the fragments are part of large circular discs one metre in diameter, with a round hole in the middle and with a beautifully-drawn pattern recurring again and again on both sides alike. The design was a six-rayed rosette-shaped palmette, framed in an astragal ; these palmettes are of a pleasingly Hellenistic style, and in their spandrels are heart-shaped figures. To these rosette-discs, which thus could be viewed from either side, were attached little pillars made of bricks and decorated with gypsum. Evidently the discs and pillars formed balustrades. They can clearly only have been used to crown the flat terrace-roof of the building. Along with the fragments of the rosettes were parts of figures in relief on stucco, two heads and limbs of horses with bridle and saddle ; the head of a bearded man wearing a pointed, grooved cap ; the hindquarters of a wild boar with the bristly mane along the back ; portions of a large beast gorgeously caparisoned, probably an elephant ; two of the puffs of curls so characteristic of Sassanid court fashions. (Plate v). These fragments leave no doubt that the relief depicted hunting-scenes, like those in the fine rock-reliefs of the cave walls in Taq-i-Bustan. That is shown by the wild boar and by the hinder foot of some ungulate, probably a fallow deer. The same is suggested by one of the two horses' heads, which is outstretched from a very thick neck and has a hanging bridle ; this can only have formed part of a galloping horse, for Sassanid art always represents standing or walking horses as heavily reined-in, whereas when galloping they are shown with outstretched head, as for instance in the battle-scenes of the reliefs in Nakch-i-Rustam or in hunting pictures like the one in the right-hand relief in the rock-grotto of Taq-i-Bustan. We cannot tell whether our stucco relief formed a continuous frieze or single independent pictures. It is curious that all the fragments found in quite widely-separated spots belong to animals running towards the right, which rather points to a frieze.

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As in the reliefs at Taq-i-Bustan, the king was drawn on a larger scale; this is proved by the two puffs of curly hair. We cannot determine whether the reliefs were done in colours. They must have been exposed to wind and weather for a long time before their destruction, and then have lain among the débris before being covered with earth, so that all trace of painting would have disappeared. Further fragments of these stucco-reliefs will be afforded by the later excavation; their existence in Ctesiphon is vouched for by the Arabian historians. When the conqueror Sa'd chose the 'white castle' for his own quarter and turned the hall into a mosque, he ordered the gypsum-figures of men and horses to be preserved, and thus for a time restrained his iconoclastic warriors who had worked their will in other buildings of Ctesiphon.

The victors set more value on the inner decorations of the building, which consisted of glass-mosaic and coloured marble as in the palace of Iwan. We have only found the meagre remnants left about by the looters, scattered cubes of glass—not merely blue, yellow, red, bright and dark green, but also blackish ones overlaid with gold leaf—and occasionally pieces of mosaic still intact, though in most cases only with the stucco bed from which the glass had been carefully scraped. Another species of mosaic work consisted of tiny thin plates of marble, cut lozenge-wise or in a curving outline, to which seem to have belonged little tablets of coloured glass and small discs of mother-of-pearl. These mosaics must have formed the decoration of the upper part of the walls, and of the ceiling, which was doubtless vaulted. The plinths were covered with marble tablets, of which we were able to secure large fragments variously coloured. Thicker tablets of marble served for the flooring, as is shown by their worn condition.

This terrace-structure to the south of the Iwan, with its peculiar wings enclosing a sunken court and with its exterior decorations in relief, arose from the reconstruction of an older site of quite different appearance and serving quite another purpose. The wall of sun-dried brick, with its interior projecting buttresses, originally stood by itself. This is seen from the fact that there are still traces of the carefully-polished gypsum decorations on its outer side. Moreover, if it had been erected contemporaneously with the covering wall, it would have had no constructive utility. On its inner side it supported a deposit of earth, which sloped like a scarp towards a court. Thus the original lay-out consisted only of this court, some 50 metres in breadth, enclosed on three sides in the shape of a U by the dyke made by the supporting wall and the earth deposit with its sloping flanks. To the east it was

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closed by the supporting wall. To the west a narrow staircase or talus on the outside of the wall led to the crest of the dyke, while a row of chambers lay outside against its short southern limb. At a distance of 140 metres from the southern limb was a wall of sun-dried brick, bending at its ends towards the south, with four openings in it ; this closed the oblong court, and on its north side, towards the Iwan, there was attached a small forecourt of similar breadth. The whole resembled an ancient sports-ground, a stadium or hippodrome, which led us to imagine something similar here, such as a ground for polo, so beloved of the Persians, or, as seems more probable to me, for the courtiers to hunt in. Such a hunting-ground is shown in one of the above-mentioned reliefs in the grotto of the Taq-i-Bustan, a rectangular enclosed court with platforms for the spectators. The scarps falling towards the court from the wall would be supports for such platforms, which would be made of wood unless there were brick tiers of seats. On the crest of the dyke, which enclosed the three sides of the court, there must have been a building which can only have constituted a narrow gallery or hall, like those crowning Roman theatres or amphitheatres. We found fragments of brick pillars with projecting half-columns, which belong to the architecture of this gallery. It must have been adorned with marble tablets and glass-mosaic, of which a few remnants lay on the old scarps. This decoration seems to have been carefully removed when the arena was destroyed to make way for the terrace-building. The value attached to such articles is shown by the tradition that Khosrau I took away from the Syrian cities which he conquered all the marble work, pillars and mosaics of the buildings for the decoration of Weh Antiokh, the city which he founded near Ctesiphon ; while Khosrau II, on the advance of the Romans of the east, sent to Ctesiphon and concealed there all the marble decorations of the Christian churches in the threatened districts.

So far the excavations have given us no clue to the date of the palace buildings in the shape of inscriptions or stamped bricks, so that a relative date only is possible. My view is that the arena first stood by itself in a game-preserve in front of the city. When the Iwan was erected, this was abandoned and its circumvallation used to build up the terraces of a subsidiary palace, the purpose of which is probably correctly explained by its modern name, Harim-al-Kisra. This interpretation seems likely from its position apart from the main palace, whose enormous apartments were used for state ceremonies. The similarity of the foundations of this subsidiary palace suggests that it was contemporary with the

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Iwan, and also its bases are at the same level. The building of the great chamber in the western portion of the Iwan clearly came later, for its foundations at least are of a different technique.

Who was responsible for the building of the Iwan? Against the view commonly held before him, Herzfeld maintained that it must have been Sapor I (241-272), adducing stylistic considerations besides the evidence of Ibn al Muqaffa; he pointed out in particular that instead of the archivolts which a later period of architecture would certainly have used, horizontal architraves (*Gebälke*) rest upon the half-pillars of the Taq façade. However, the Syrian and Mesopotamian architects of the 6th century were fond of using horizontal architraves over the wall-pillars, as may be seen for example in the apse of the church of Qalb Lozeh. A later period of construction is further suggested by the arched and friezed archivolt of the Taq, which could not possibly have been found in any 3rd century building, but occurs again in the apsidal arch of the church of Qalb Lozeh and in the early Islamic Ukhaider. In my opinion this goes to show that the name Taq-i-Kisra is the rightful one, and that it is the throne-room of the palace built by Chosroes I Anusharwan (531-579), the Iwan-i-Khosrau. This is confirmed by the style of the stucco-reliefs which adorned the terrace-building, though these reliefs cannot be adduced as evidence for the date of the buildings as their decorations may naturally belong to a later period.

Beyond the narrow circuit of the city we found ornamental stucco in several spots on the surface, chiefly in two places. We scraped away a little of the soil on the mound of ruins to the north of Salman Pak, al Ma'arid, and on another site to the east of the Taq, known locally as Umm es-sa'atir. Apparently we have here the ruins of little garden-palaces or villas, along the canals that have obviously been dry from Sassanid times. In both cases the finds were interior decorations, in particular wall-panelling of plaques and finely-drawn moulding showing considerable charm, but of a later period than the stucco of the terrace-building south of the Taq. The chief motifs are wing-palmettes on square tablets, with decorative inscriptions in Pehlevi within circular frames of pearl, garlands of flower-tendrils, imbricated cornice-moulding (*Schuppenwulste*) palmette-friezes, meander-work, animals in scroll-work, etc.; they partly agree with what is considered as early Islamic. The stucco must date from late Sassanid times. We found early Islamic stucco ornaments, again in surface-finds, together with pottery, glass-ware and other things, very close to Salman Pak, and

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especially in a dwelling-house which Dr Kühnel was able to excavate fairly completely. To judge by the finds, this house belongs to the 9th century, and suggests that the inhabitants of the city of al Mada'in, the later successor to Ctesiphon, lived luxuriously enough. The stucco-work was still partly attached to the walls, or else, where it had been pulled away, lay on the brick floor of the rooms and courts. For much of it we must look for parallels in the stuccoes of Samarra, while part gives an impression of greater antiquity.

We have then actually fulfilled the hopes entertained of discovering in Ctesiphon decorative materials which provide links with Islamic art. There seems much promise in the further excavation of these sites in which for the most part we could only carry on surface scraping, and we may expect similar finds in other places. If as a result there can be traced the unbroken sequence of decorative types in the district which is most important for the development of Islamic art, the labour of these smaller investigations will be richly rewarded.

On the west bank of the Tigris the most valuable results seemed likely to follow from the examination of the large group of mounds known as Dja'aret al Baruda. The pottery lying on the surface showed that a settlement still existed here in the 13th century, which we at first assumed to be Bahurasir, the successor to Weh Ardashir. But when we cut through the hill, we saw that the strata were entirely Islamic, and we were also disappointed in our hopes of finding the Sassanid city in the adjacent plain to the south. Here too the Sassanid stratum lies very deep, and is covered over with layers of mud and sand, caused by the repeated floodings of the Tigris. Meanwhile our deep excavations had a valuable result, the discovery of Islamic pottery from the early period up to the 13th century.

Further south we were more fortunate. Here, adjoining the massif of the Dja'aret al Baruda as far as the fragment of city-wall that still remains erect, there is a wide range of ruins, fairly flat though clearly delimited. Drs Heidenreich and Wachsmuth uncovered here a burial-ground of Parthian times, their attention being attracted by the surface pottery and in particular by fragments of brown glazed earthenware sarcophagi. The tombs are of brick, and barrel-vaulted, like those at Assur, Nuffar and other places in Iraq which are known to be Parthian. They have been repeatedly used, to judge from the two which we have examined. One of these contained numerous skeletons and, lying by them, earthenware vessels, lamps and small glass bottles of the Parthian type familiar from Babylon and other excavations in

PLATE I



THE ARCH OF CESHIMON, LOOKING EAST
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PLATE II



THE ARCH OF CTESIPHON

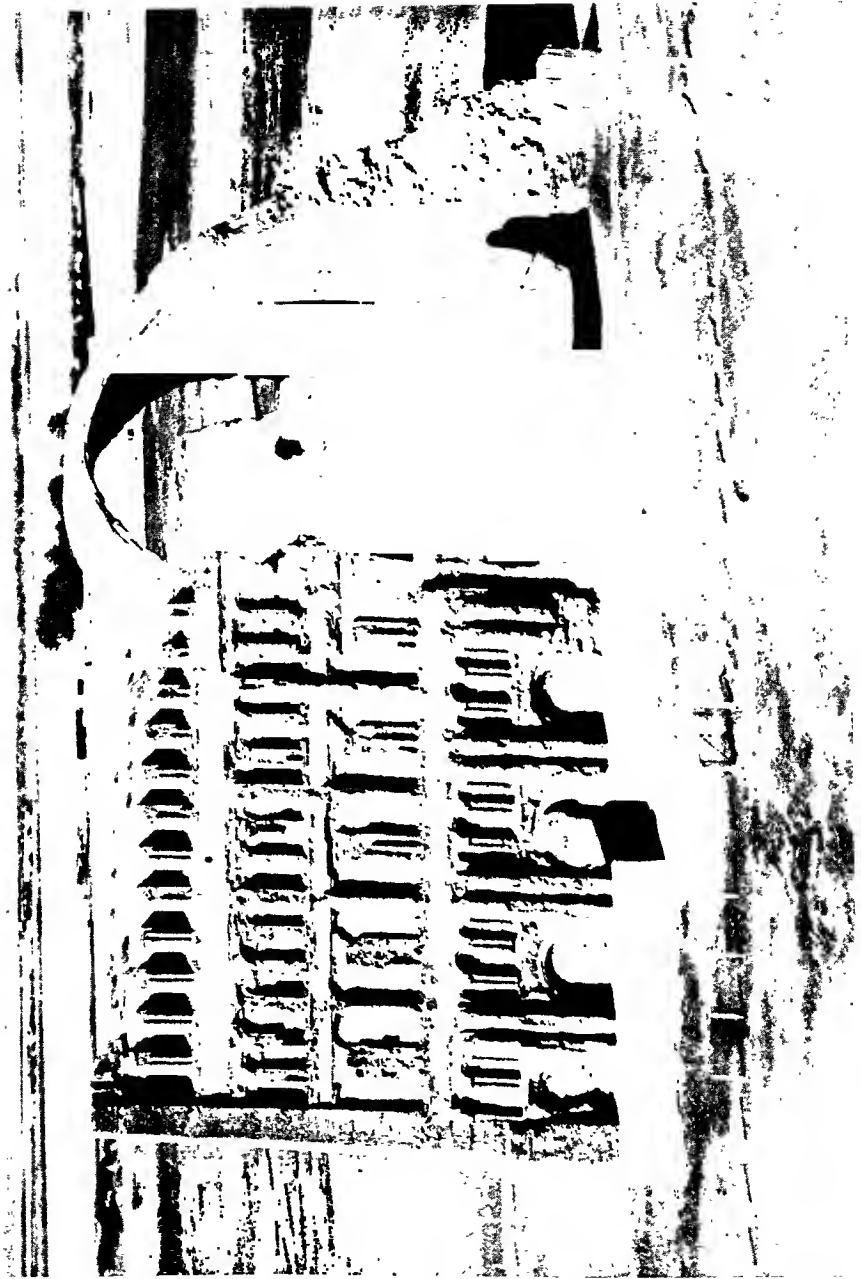
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PLATE III



THE PALACE OF CIESPHON, EARLY 1929, SHOWING EXCAVATIONS
By permission of the In Comm. Crown copyright reserved

PLATE IV



THE ARCH OF CTESIPHON, LOOKING EAST TOWARDS THE TIGRIS

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PLATE V



STUCCO WORK FROM MAYA-RID

PLATE VI



FIGURE OF A MAN, IN RELIEF, FROM THE CHURCH,
QASR BINT AL QADI

THE GERMAN EXCAVATIONS AT CTESIPHON

Iraq. Near the graves was also found a marble statuette of a recumbent woman, showing traces of colouring, a little earthenware pot with silver coins from an Arsacid mint, and other objects. It would appear that this Parthian cemetery within the enceinte of Ctesiphon was known to be such in Sassanid times, and that on religious grounds it was not built over.

Chief among the ruins on the western side was the little mound known to the Arabs as Qasr bint al Qadi. Herzfeld has already remarked



FIG. 1

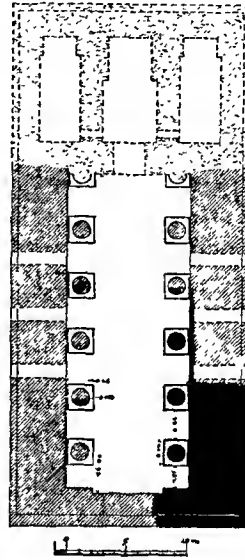


FIG. 2

upon the still standing masonry of the wall, made of large bricks 31 centimetres square. Drs Wachsmuth and Heidenreich removed the later Islamic crust and revealed a monumental building which soon proved to be a Christian church. (Fig. 1). The whole formed an aisleless nave roofed with a barrel-vault supported on pillared walls. The rectangular pillars of the nave stand a little in front of the walls and are joined to them by small parabola-shaped arches, of which one was exposed before the excavation and taken by Herzfeld to be the opening of a drain. Thus enlarged rectangular niches are formed, roofed in by semi-cupolas. The barrel-vaulting sprang from the inner line of the pillars; it roofed the building with a 9-metre span and in collapsing filled it up with its massive bricks. This

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type of chamber is frequent in Sassanid architecture. In Mar Tahmazgerd half-columns are set in front of the pillars connected with the wall, and the same may be seen in the great hall in early Islamic Ukhaidir. In Sarvistan the barrel-vault is carried on pairs of pillars, which stand close up to the wall and leave a narrow corridor, like the rectangular pillars of our churches. To the east, a tripartite group of chambers adjoins the nave, in the middle the altar-space and at its sides the slightly narrower pastophoria; all these chambers are joined to the nave by relatively narrow doors, and are likewise widened by niches, while they were doubtless enclosed with the barrel-vaulting. The altar-space, like the side-chambers, is cut off straight, with no apse; on its east wall it has a step, in front of which we discovered in the floor four round recesses, forming a square, where the pillars of a ciborium must have been sunk. On the ground before this step there was the débris of paving laid down in Islamic times, and underneath was the draped figure of a man, made of painted stucco in high relief, and broken into several fragments. (Plate VI). Unfortunately, head, hands, and feet are missing. The figure is about three-quarters life-size, and can hardly represent any other than a saint, probably the dedicatory saint of the church. We found with it pieces of ornamental framework, likewise coloured and in part gilded, half-pillars with shafts of zigzag pattern, palmettes, and other things.

On further investigation we found that this was not the first church; an older one had stood there, with a narrower nave and with thick rounded pillars on square bases standing close to the side-walls, instead of the later rectangular ones. (Fig. 2). From Dr Wachsmuth's observations we may conjecture that this earlier church was not completed, but lay unfinished, and that the later one with its greater breadth was built over it. Such a history can easily be understood if we remember the troubled times through which Christianity lived under the Sassanids, and the constant alternation of persecutions and temporary favour.

We cannot as yet tell the age of the church. If we can date the character of the script, a *terminus post quem* is given by an ostrakon with an inscription in Syrian, calling upon the god of Abraham, Isaac, and Jacob. It was found in the altar-space, under the floor of the later church. The shape of the stucco framework of the statue is similar in part to what we found in the terrace-building south of the Iwan. The treatment of the saint's drapery closely resembles that of the two victories in the spandrels of the arch of Taq-i-Bustan. All this suggests a later period, and we are of the opinion that the second church

THE GERMAN EXCAVATIONS AT CTESIPHON

dates from the middle or the end of the sixth century. Tradition tells of Chosroes II (591-628) that under the influence of his Christian wife he built a church to the Virgin and dedicated another to St. Sergius. So far we cannot tell which of the different churches we have excavated at Ctesiphon, and therefore are ignorant of the identity of the saint.

In conclusion there are the city walls. The massive ruin, called by the natives *es Sur*, rising from the plain like a small chain of mountains, was taken to be the city wall of Seleucia before we began to excavate. We could only investigate a small portion of the wall, and had to be content with ascertaining the methods of its construction. Our previous conjectures were confirmed. The wall corresponds with what we know of Sassanid fortified buildings, in particular with the city wall of Dastajird. It is built of sun-dried bricks, mortared with clay, about 10 metres thick and set with semicircular turrets 9.30 metres in breadth and projecting for the same distance. The curtains are 38 metres long. Both turrets and curtains are divided in their upper portions by flat niches sunk between broad pillars, probably closed by arches and thus forming a blind arcade. Beneath this row of niches there is a scarp sloping steeply in the foreground, made of piled-up earth and strengthened by a layer of sun-dried bricks. We could not ascertain if there was a fosse. Afterwards we also investigated the ruins of the city-wall on the east bank of the Tigris, which today bears the name of *al Tuwaibah*. Here too we could make out semicircular turrets, smaller however than those on the west and with shorter curtains. But the uniform character of both lengths of wall seems to be quite certain.

We can now summarize the most important results of our expedition's first campaign. First comes the very valuable topographical information as to the true site of the two cities Seleucia and Ctesiphon; secondly, we have increased our knowledge of Sassanid palace buildings, and in addition have made quite new discoveries concerning the Christian church architecture and plastic art of Sassanid times; further, we have learnt more of their methods of fortification, and, not least, have gained insight into the development of Islamic architectural decoration and pottery. We could not complete all the investigations begun, and many questions have even yet not been considered. Thus there are still many problems awaiting solution from the excavations planned for the coming season (1930-31).

Woodbury

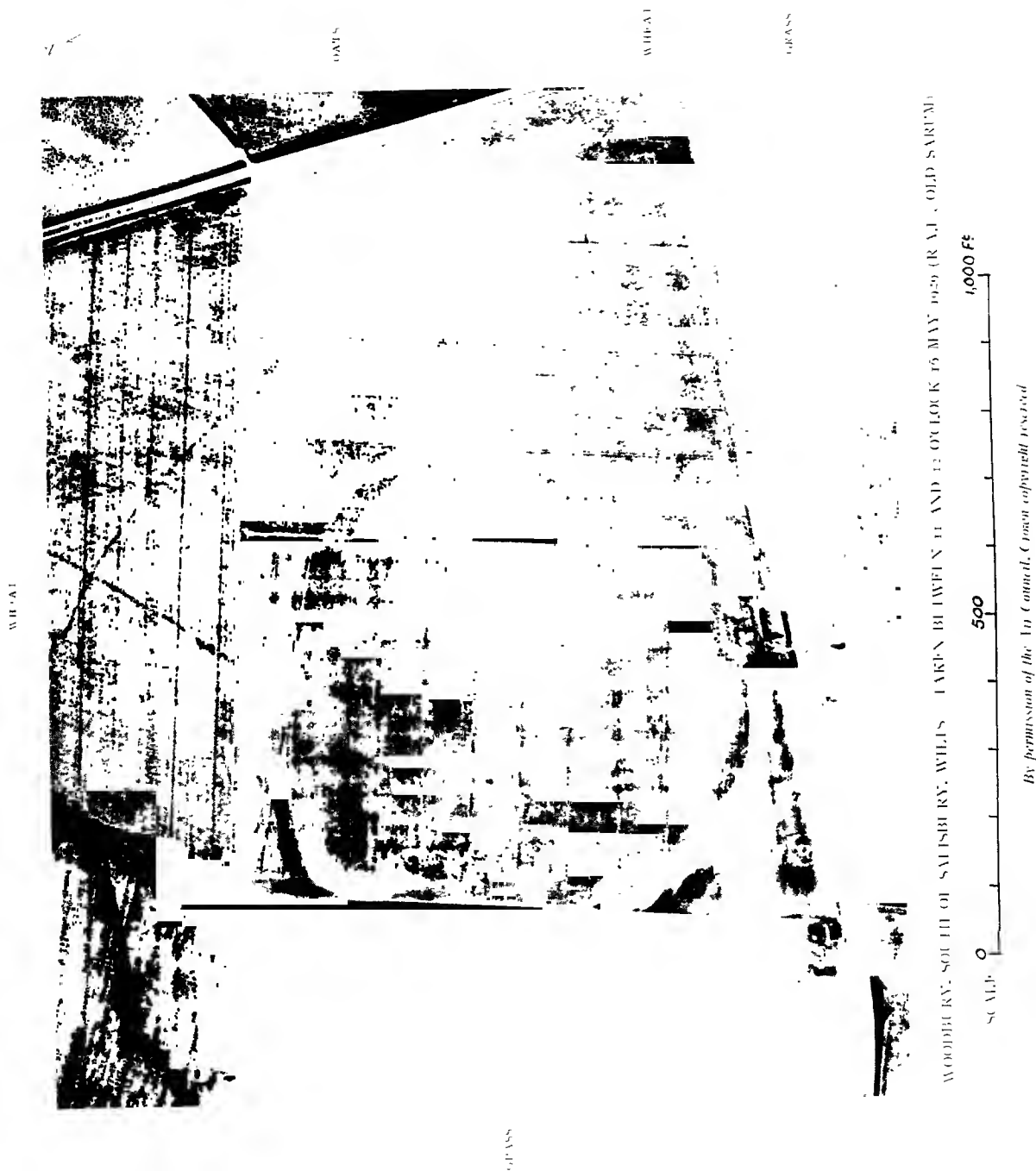
TWO MARVELLOUS AIR-PHOTOGRAPHS

by O. G. S. CRAWFORD

THE plates facing pages 385 and 452 of this number represent the culminating point of archaeological air-photography. They were taken by Pilot Officer Jonas, R.A.F., between 11 and 12 o'clock on the 16th of May 1929, using a K.2 filter. The sites lie half a mile apart on the hill called Woodbury, less than a mile south of Salisbury Cathedral, between the Blandford and Bournemouth roads. Woodbury is three miles south of the aerodrome at Old Sarum, from which they were taken and where I found them when taking over obsolete negatives on behalf of the Ordnance Survey (where they now are). They were taken during pin-pointing, as part of the ordinary routine of training ; but that these particular sites were selected for practice is due to the keenness of the photographic section at Old Sarum, which has been closely associated with the development of this branch of air-photography from its birth. (It was the Old Sarum section that obtained many of the first archaeological air-photographs ever taken, including those of the Stonehenge Avenue, in 1921, and of the Celtic fields round Winchester, in 1922). Regarded merely as photographs, from a technical standpoint the negatives are as nearly perfect as possible. The wonderful definition of the crop-marks is probably due partly to the use of a K.2 filter, partly to the dry spell during the first half of 1929.

The larger of the two enclosures (plate opp. this page) is Woodbury, which I discovered in 1924 (*Wessex from the Air*, plate VIII, page 80) ; but this is a far better representation of it. Not only does the black band of the surrounding ditch come out very distinctly, but the interior of the camp is seen to be covered with black spots and lines. The black spots are of two kinds, large and small ; the large blobs are doubtless the sites of huts ; they are mostly circular, and some are surrounded by a faint narrow black line, representing possibly a drainage ditch. The small black spots must represent small pits and post-holes, serving doubtless many different purposes. On the western side a rectangular enclosure may be faintly discerned. In the

PLATE II



WOODBURY

middle of the north side is a large dark blur (corresponding to a shallow depression on the ground). The entrance may have been here, and if so the dark line leading north-eastwards from it across a field of wheat may be a prehistoric hollow track-way—it is in any case plainly contemporary with the camp, where it ends.

Just outside, on the south-west near the road and between the two ricks, is a beautiful little double circle. It is too small, apparently, for a disc-barrow, and must remain a puzzle till it is excavated—an easy task.

The larger (central) portion of the interior was under barley when this photograph was taken. The field on the west (where the ditch disappears) was under grass, and that on the east under wheat. Note that barley registers far better than wheat, and grass not at all. The field on the north also contained wheat; its lighter colour may perhaps be due to later sowing.

I visited the site on 13 October. There was nothing whatever to be seen except on the western side, where the broad shallow depression of the ditch is plainly visible. Here too the remains of the white chalk rampart can also be seen, though far less plainly than on the photograph. There seems to have been an outer rampart also here, and it is just the place where one would expect it. There were hints of such on the air-photograph I took; but the western field both then and subsequently (in 1928 when some other R.A.F. photos were taken) has unfortunately been planted with an unsympathetic crop.

The whole of the interior is covered with pot-boilers, and I found part of the base of a pot of New Forest ware. One would naturally attribute the construction of the camp to the people of the Iron Age, but there is no evidence one way or the other.

The discovery of Woodbury in 1924 was a pure accident. At the same time I observed, about half a mile to the east, a *smaller enclosure* with a slighter ditch. It was, however, much less striking, and we did not photograph it. It is merely recorded in *Wessex from the Air* (pp. 80-1). The magnificent photograph which forms the frontispiece (facing p. 385) of the present number presents it, therefore, as virtually a new discovery. The honours are divided between Old Sarum on the one hand and a crop of barley and oats, starved by drought, on the other. The enclosure itself consists of an irregular, very plainly marked black line, continuous except at a point on the north-east, where a gap, about 62 feet wide, represents the entrance. From near by diverge two curious narrow horns, like the antennae of some giant insect. But the

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most striking feature of the photograph is the fact that it shows a mass of black spots within the enclosure. These occur nowhere else and are without any doubt the vestiges of permanent habitation. They consist, as before, of a number of small dots and some larger blobs. The latter, however, are here strung loosely together, forming a group. One may reasonably infer that they represent the site of the main group of huts.

The absence of pits and hut-depressions outside the enclosure is very striking—more so than on the other photograph, though also to be observed there. This is the first time that air-photography has proved capable of recording by means of crop-marks the presence of these prehistoric hut-sites ; and it shows that, given favourable conditions, we may hope for great things in the future. The bulk of the area of the enclosure, as well as the ‘ antennae ’ and the sites about to be described, was under barley which, *on certain soils*,* is thus proved to be a better ‘ developer ’ than oats, wheat or grass. We may expect to find similar dots and blobs amongst the many air-photographs stored at the Ordnance Survey, now that we know from this instance that they can be relied upon. Many such settlements may have existed in the open, without a protecting bank and ditch round them.

A small segment of the enclosure encroaches upon a field of oats on the south. Here the ditch seems wider. It is of irregular width throughout, expanding in places for a short distance ; the two ends at the entrance are also slightly expanded.

At the time of my visit the whole area was covered with stubble. I could not even see anything on the ground to enable me to identify the site of the enclosure or its contained markings. The farmer whom I met on the spot, with some of the labourers, told me, however, that they knew the ‘ ring ’ well and had regarded it as the relics of some former field-enclosure. They could see it in the spring. The area is covered with pot-boilers.

Outside, in the NW corner of the plate, is a small four-sided enclosure. The ditch was evidently very narrow, since the black line, though quite distinct, is much fainter. The two eastern angles (of the enclosure) are sharp and the other two are rounded. There is a gap in the north side, and two black spots set close together within the area. South-west of it a smaller rectangle is just discernible ; it is divided into two unequal halves. It suggests some sort of a building. The dark line beyond is an old hollow field-track, still in use and aiming at Britford.

* But not on all ; see ANTIQUITY, I, 469 (The big circles near Dorchester, Oxon.).

WOODBURY

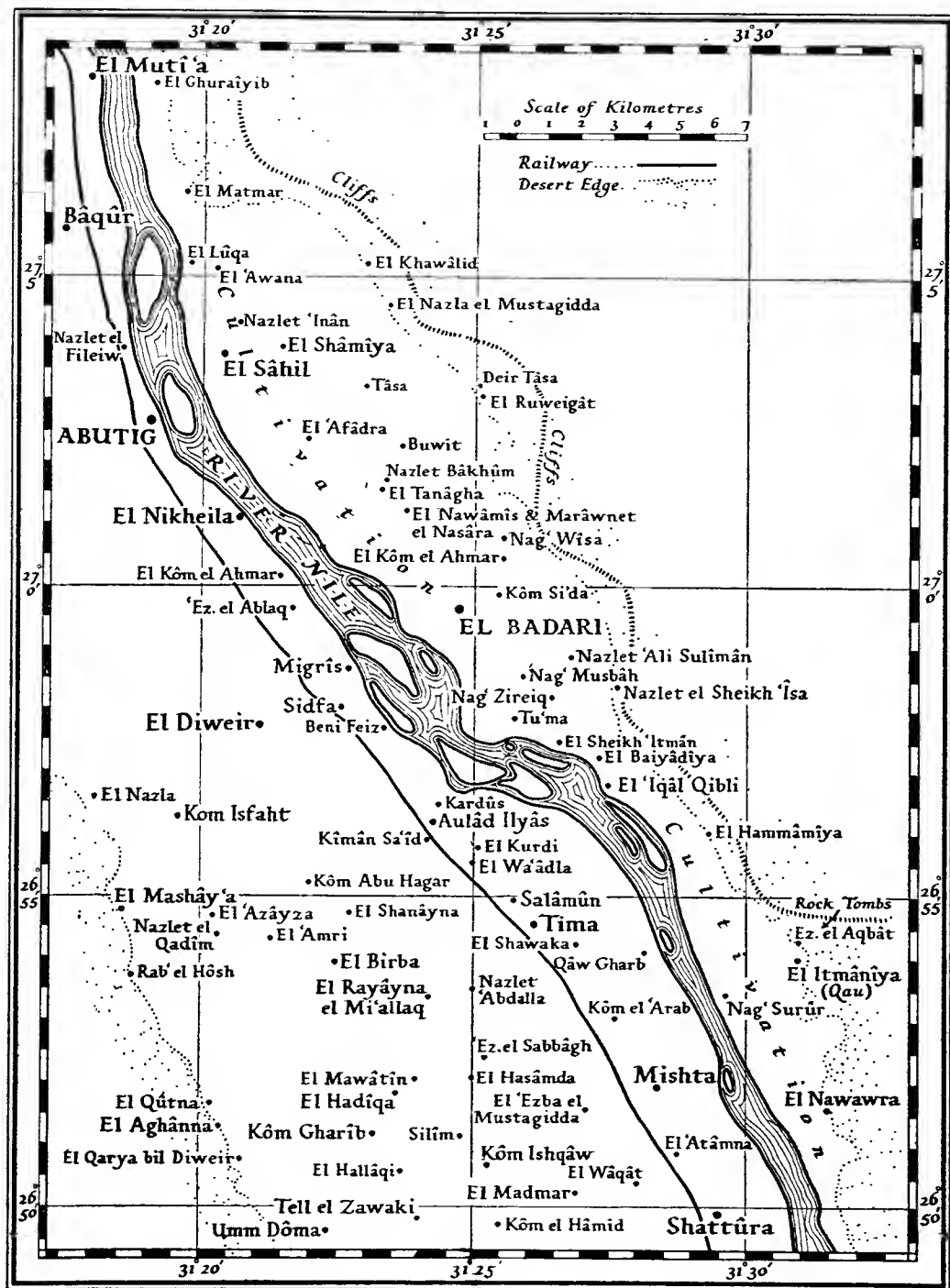
I have not, in the above brief account, exhausted the many points of interest revealed by these remarkable photographs. (I have not, for instance, said much about the wandering lines that can be seen ; one of them runs directly from Woodbury to the smaller enclosure). They are valuable not only in themselves but for what they foretell. They are the heralds of innumerable queer resurrections. They assure us that no site, however flattened out, is really lost to knowledge. Scotsmen in particular will welcome their message ; for certain lowland regions, such as the Vale of Strathmore and the coastal plain near Edinburgh, where oats and barley predominate, are admirably suited to this method. Not only will many of General Roy's Roman camps come back to life, but others doubtless will be discovered, particularly along the line of the known Roman roads. One can imagine no more fascinating pursuit for the owner of a private aeroplane.

The Beginnings of Egyptian Civilization

by GUY BRUNTON

EVER since the first discovery of predynastic cemeteries in Egypt by Sir Flinders Petrie at Naqada in 1895 it was realized that the beginnings of civilization in the Nile Valley had not been found, and that remains of earlier stages might come to light. For nearly thirty years, in spite of active and more or less scientific excavation in all parts of Egypt and Nubia, no earlier settlements or cemeteries were discovered which could then be classed as older than predynastic. Flintwork of palaeolithic man abounded, especially on the high desert; and the flints of the Fayyum, in great variety, were recognized as mainly neolithic. But the ancestors or forerunners of the predynastic people seemed to have left no other trace. Probably the advance of the cultivation with the gradual rise of the mud level had obliterated all that they had left behind them. Steep slopes of desert are obviously covered less quickly than the flatter areas. The eastern desert fringing the cultivation in the Badari district of Middle Egypt presents a succession of more or less high spurs intersected by dry watercourses or *wadys* running down from the cliffs to the fields. It is here, and so far here only, that the much sought for precursors of the predynastic Egyptians have been revealed to us. They have been called Badarians to distinguish them from the well-known predynastic people (Amratians, Gerzeans and Semainians) with whom they are closely akin both in culture and physical type.

In the autumn of 1922, when the expedition of the British School of Archaeology in Egypt was placed under my direction, I chose the site of Qau in the Badari district on the east bank of the Nile for various reasons. Chief among these was the wish to rescue what might be left of the predynastic antiquities from the clutches of the native tomb-robbers who for some time past had been supplying the dealers of Cairo with these objects. The preliminary visit which we paid to the site was not encouraging. Everywhere in the great cemetery in the centre of the bay at Qau were rifled graves; heaps of sand thrown out by the diggers met our eyes wherever we looked. But the pottery here was not



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predynastic, and it was evident that the early cemeteries lay in other directions. We eventually found four in different parts of the bay, and to the north of it at Hemamieh. These were moderately fruitful but added little to our knowledge. Here and there however we had picked up sherds, hand-made and black-topped like the predynastic, but with the surface finished off with a comb causing a pleasing rippled effect. The connexions of this pottery were quite a mystery ; and the plot thickened enormously when we found an isolated grave, or part of one, containing a flat-bottomed bowl of fine black-topped brown rippled ware, a beaker-shaped vase of black pottery incised with patterns filled in with white, a four-handled vase of pinkish ware, and a flint knife, all of forms which were new to us, which we therefore could not date, but whose nearest affinities were certainly early.

A few badly plundered graves containing rippled pottery lay in the flat ground at the foot of the Qau cliffs, and odds and ends were turned up at Hemamieh. But it was not until the next season, 1923-1924, that the main discoveries were made which enabled us to place the Badarian culture in its proper historical position. At Badari, an hour's walk north of Hemamieh, fragments of rippled pottery, lying on the desert surface quite thickly in places, were found by Mr Starkey ; and we accordingly camped at the most promising spot near the village of Sheikh 'Esa where we spent two seasons, the work being still on behalf of the British School. Though the connexions of the Badarian culture with that of the Amratian or early predynastic were fairly obvious, it was Miss Gertrude Caton-Thompson's very meticulous examination of the sherds and flints in the stratified village rubbish a little north of Hemamieh which gave the first scientific demonstration that our rippled pottery and the objects associated with it were really, as we had indeed supposed, the work of men who preceded the predynastic people.

Close to Sheikh 'Esa lay two or three cemeteries of the Badarians, much plundered it is true, but yielding us a quantity of pottery and other antiquities of various kinds. These have enabled us to visualize fairly fully the character and mode of life of the Badarians. The complete details of this are published in *Badarian Civilisation*.

After an interval of two years mainly occupied in the publication of the 1923-25 results, both prehistoric and dynastic, I decided that more work ought to be done in the Badari district to see if these early remains existed further north of Naga Wissa, the village which formed the limit of the previous concession. As no public support was forthcoming the expedition was financed privately, the British Museum lending its name

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and giving facilities for the exhibition of objects.¹ The expedition having necessarily to be on a small scale, it has taken two seasons to examine the stretch of ground from Deir Tasa to Khawaled, with a central camp at Mostagedda. Thus we have so far searched a stretch of desert some twenty miles long from Nauwara on the south to Khawaled on the north. This coming winter we shall see what the next six miles from Khawaled to Matmar will provide for us ; but once more our activities will be limited for financial reasons.

The work of the last two years has consolidated our knowledge of the Badarians, helped us to fill in the outlines, and given us a number of objects. The Cairo Museum now has a representative collection of pottery, flints, slates, ivories, beads, and other objects of this remote civilization ; and there is still much left for other museums. But the chief result is the discovery of a rather different culture, which, as far as we can see at present, is, once more, older than any other known from graves in Egypt with the possible exception of Dr Junker's recent discoveries at Merimde or Quibell's at Heluan. This new cultural phase we have named Tasian from the village of Deir Tasa where the graves were first located.

Although the relative date of the Badarians would seem to have been demonstrated in the most complete way possible, there are still one or two who seem to think that nothing in Egypt can be older than the well-known predynastic. Mr Firth in his carefully considered review of *Badarian Civilisation* (ANTIQUITY, 1929, p. 243) expresses the view that the case may not have been made out, and that the Badarians were perhaps later Nubians or kindred folk living alongside the Egyptians, just as the pan-grave people did in the second intermediate period, or like the Bisharin or Beduin of the present day. But the pan-grave people are easily datable from the purely Egyptian objects that they used ; and he would be a bold man who would contend that the Beduin now living in the Nile Valley do not use anything at all of native Egyptian manufacture, though they do keep up their own crafts to a great extent. Yet in all the Badarian graves that I have examined, probably some five or six hundred, there is not one single Egyptian object of any period with the exception of one or two pots which are early predynastic and not associated with typical Badarian objects, and also with the exception of the glazed steatite beads which run right on well

¹ The EDITOR has erred in his reference in ANTIQUITY (1928, II, 355) to the work of the British School, which is now engaged in Palestine.

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into the predynastic period. Even the stratified deposits at Hemamieh do not satisfy Mr Firth, who suggests the possibility that the villagers, having for some reason run out of their own pottery and implements, raided neighbouring cemeteries, carefully choosing the earliest first and having a rooted objection to anything wheel-made or dynastic, though there was plenty of this to be had close by.

This year we have fresh evidence of date. At Mostagedda there is a wide occupation site with a deposit of ash and organic refuse, sometimes three or four feet deep. In this deposit are sherds and flints, which, though not in great quantities, are characteristically Badarian. A considerable number of graves were found to have been sunk in this stratum, packed closely together, often quite undisturbed, with the matting coverings intact, with the filling consisting of the ashy debris, and with the ash and in some cases sherds under the bodies. Obviously the burials were placed there after the village had been abandoned and forgotten. These graves are easily dated by the objects found in them. Cross-lined pottery, flint knives, and beads are all of Amratian (early predynastic) types, and there is no trace of anything of later date. If we had never found anything elsewhere this would have been sufficient to show that the Badarian culture was earlier than the Amratian.

When we come to the absolute dating of these cultures we are faced with the difficulty of estimating their duration. For the predynastic period, with its two or three distinct changes of style in pottery and other objects, a length of time has been suggested by different inquirers which varies from 500 to 2000 years. If we take into consideration the fact that development in primitive times is slower than in later ages, and that the changes between the Amratian, the late predynastic, and the proto-dynastic cultures are very marked, we may not be far wrong in assuming a period of something like 1000 years for the whole predynastic age. If we take 3400 B.C. as a more or less agreed date for the beginning of the First Dynasty, we must then place the beginning of the Amratian period at something like 4500 B.C.

To go further back and to give a definite date to the beginning of the Badarian culture is to become involved still deeper in conjecture. So few remains of these people have been found, and those in such a restricted locality, that we cannot yet form an idea of the length of time during which the Badarians flourished. The date 5000 B.C. has been suggested ; but this is not to be taken as more than an indication of the fact that the Badarians preceded the Amratians, and is given to satisfy those who clamour for figures of some kind as an aid to memory.

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There is, however, some exterior evidence of date. The flints of the Fayyum, so similar in many respects to the Badarian implements of the Nile Valley, are datable by the lake levels with which they are associated. Miss Caton-Thompson and Miss Gardner give a rough estimate of 5500-4500 B.C. for their Fayyum A and B cultures (*Geographical Journal*, Jan. 1929, plate). We may also consider the strong probability that the climate of the Nile Valley was wetter in Badarian times than it is now. The presence of large tree roots in many places high up on the desert spurs, sometimes at the same level as the old village sites, is evidence of this. If we connect this wet period with the latest phase of the European ice-ages we are led to a date rather subsequent to 6000 B.C.

It is yet early to say how much of the Nile Valley was occupied by the Badarians. So far their villages and cemeteries have been discovered in the Badari district only; but occasional objects have turned up, such as typical palettes from Maḥasna and Naqada and from Luxor shops, and sherds of brown black-topped ware from the predynastic town rubbish at Hieraconpolis. This distribution is closely the same as that of the 'cross-lined' pottery, characteristic of the Amratian cemeteries. Up till now no Badarian or Amratian graves or villages have been reported north of the Badari district. It may indicate that the two cultures entered the Nile Valley in the same way. This is, however, taking into consideration the pottery and palettes only, and the similarity between much of the Badarian and Fayyum flint work must not be lost sight of.

The Badarians were an agricultural and pastoral people, living very much like the Beduin of the present day, forming settlements of small size, generally close to what are now dry *wadys*. Although they were not nomads in the strict sense of the word, they do not seem usually to have occupied any one site for a long period. Most of the deposits of village rubbish, consisting of ash, charcoal, and organic refuse, and containing sherds and flint flakes, are very shallow, sometimes only a few inches in depth. The groups of graves are small and scattered, hardly worthy of the name of cemeteries. Now and then a depth of rubbish extending to three feet or so indicates a more prolonged occupation; and the presence of pottery vessels of considerable size and at the same time of thin fragile ware, shows that they were more or less settled folk.

We have no hut-circles sunk in the ground such as we find in predynastic times; the Badarian house seems to have been more in the

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nature of a shelter, formed perhaps of skins or matting stretched over wooden frames. The stumps of poles have been noticed occasionally in the villages. A number of deep pits, often narrow at the opening and widening out at the base, have been found near the village sites. These are quite unlike the graves, never contain burials, and are certainly store pits, in most cases probably granaries. It has been suggested that agriculture was not introduced into Egypt before the middle predynastic age ; but we now know that the Badarians had emmer wheat, for it has been found in their graves under circumstances where it cannot possibly have been intrusive.

Of firing there was no lack, judging by the vast amount of charcoal found ; this is an indication that brush-wood was abundant, and affords additional evidence that the climate was wetter then than it is now. The profusion of matting in the graves gives us an idea how plentiful reeds and rushes were along the Nile banks. We can imagine that what is now the cultivated plain with its smiling crops was then an expanse of reedy swamps, filled with hippopotami and crocodiles, and awaiting the beginnings of its reclamation at the hands of the energetic predynastics who succeeded the Amratians.

The Badarians had no lack of food ; they kept oxen, sheep, and goats ; game was plentiful on what is now the high desert. Birds were perhaps hunted with throw-sticks. Fish were caught either in nets or with hooks made of shell or bone. Emmer wheat was cultivated in small patches, quite possibly on what is now the low desert. Cooking was done in the open, small hollows being made in the ground in which were stood the large wide-mouthed pots of rough ware, with firing packed about them. The family would gather round to enjoy the meal of porridge or stew. The large square-bowled spoons or dippers made of ivory with the handles ending in the form of animals' heads may have been used on these occasions to fill each man's small bowl. The herds, besides providing food, were a source of the skin garments worn by the majority. Finer skins were provided by the gazelles or other antelopes killed in the chase. Weaving however was well-known, traces of textiles being found in many graves ; but this was used sparingly in the form of kilts, head coverings, and even possibly handkerchiefs. Of their ornaments we have a great variety. The hair, which was shortish, brown, and wavy, might be bound with a string of brightly coloured Red Sea shells. In it was sometimes placed an ivory comb headed by the figure of an animal. One tiny stud of green stone has been found still fixed in the skin of the nose, and studs of pottery, occurring occasionally,

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may have been placed in the lobes of the ears. Round the neck were strings of shells, large and small beads of stone, often glazed, bone, ivory, and even copper, but not of faience. On the necklace was sometimes hung an amulet in the form of an ibex head or a hippopotamus. One large bead of alabaster or ivory was rarely worn at the neck or wrist strung on a leather thong; armlets and bracelets of thick ivory are frequent, ornamented in a few instances with inset beads of bright blue colour. Men who could afford the luxury wore belts composed of thousands of these steatite beads covered with blue glaze. It seems probable that they were traded from elsewhere because they are the only examples of glazing used by the Badarians, and the fine piercing of the holes implies the use of metal tools which the Badarians do not seem to have possessed in any quantity. To add to their attraction, and also perhaps as a guard against disease, men and women alike painted round their eyes with green malachite paste; and it is possible that they also used rouge.

It seems likely that the pieces of closely plaited rope-work on wooden poles which have been found in the neighbourhood of Badarian graves, are fragments of their beds. They certainly had pillows, of linen or fine leather, stuffed with chaff; these have been found in graves placed under the heads.

We have no implements which we can definitely call weapons such as mace-heads, though doubtless both arrows and stone axes could have been used for warlike purposes. In fact the Badarians seem to have been a peace-loving people; there is a large proportion of aged skeletons, and no sign of injuries. This however might be accounted for by the fighting, if any, taking place far from home. There seems also to be an excess of males; but this again may be due to the women's graves having been more plundered for their ornaments. Apart from the tending of cattle and the tilling of the soil, the people busied themselves with mat-making, basketry, leather-work of various kinds, rope-making, a certain amount of rough carpentry, ivory carving, bead-making, probably weaving, and a great amount of pottery. It was in this last activity that they excelled, for the best of their wares are finer in quality and finish, if not perhaps in form, than any that was made later. To arrive at this fineness and thinness, especially of the rim, which they so much desired, they employed a comb of some kind to scrape away the excess of clay before it became thoroughly hardened in the sun. This scraping produced a series of finely rippled grooves which were pleasing to the eye, were carefully elaborated, and used as a decorative finish.

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The surfaces of the finer wares are usually of a neutral brown colour in the earlier times, and red later. Almost all the best pots have an irregular band of lustrous black round the mouth; this is the feature which is so common in the predynastic wares. The shapes are mainly bowls of various kinds with a very thin lip, pleasant to drink from. The rim is very rarely turned out, as it commonly was in predynastic times. There are very few cases indeed of handles of any kind, and scarcely any decoration. Almost the only method of ornament was the careful scratching, with a dull point, of designs on the black interior surface of the red polished bowls. These designs are all derived from plants and are more or less conventional (fig. 1).

Although we can be sure that most, if not all, of the pottery was of local make, we find that, though there was no scarcity, still it was used

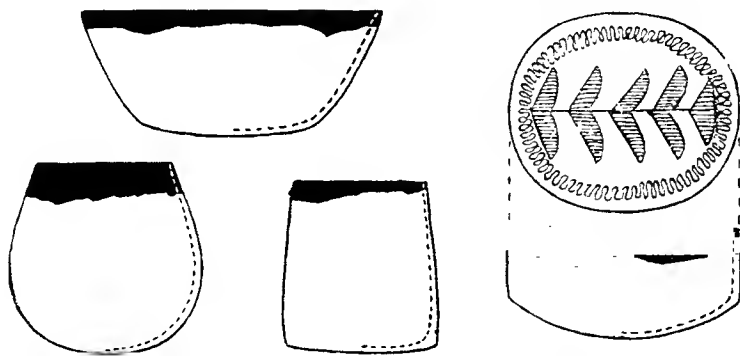


FIG. 1. BADARIAN POTTERY FORMS. Scale 1:6
Drawings by Mrs W. M. Brunton

in a thrifty manner; for even the roughest vessel when cracked was not tossed into the rubbish heap, but carefully mended. A crack was either plugged with a pinkish cement, or a row of holes was bored on each side for lashing the edges together by means of thongs or grass fibres. Sometimes a new base was made for a pot and fastened on in this way.

The Badarians do not seem to have ever buried their dead under or close to their dwellings. A piece of ground where the soil was easily dug was selected, generally on the same desert spur as the village but nearer the cliffs. In the same way as the predynastics and as the later Egyptians, they tried to make the grave as closely like a habitation as possible, and the dead were laid to rest in the natural attitude of sleep, the head resting on the sloping side of the grave, or sometimes on a

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pillow. The deceased was clad in his everyday garments ; and either he wore his usual ornaments or they were placed where he could easily reach them. With him were his food bowls, sometimes empty and ready for use, sometimes containing a small supply of food and drink. Close to his hand were his slate palette and pebble for grinding his eye-paint, his bone or flint tools, and collections of odds and ends, pebbles, crystals, and so forth, the use of which we cannot always now understand. Under him was his reed mat, and over him was a roofing of matting, sometimes supported on transverse sticks. Occasionally a kind of hamper of sticks and matting was made in imitation, probably, of his village hut. The finding of cooking pots *in situ* in the cemeteries leads us to suppose that the relatives sometimes had their meals at the grave-side as they do at the present day ; but it may be that these pots belong to a village the site of which was forgotten and reused for a cemetery. However this may be, it is certain that the Badarians believed in a life after death ; and we can go a little further and see how this life was in some way connected with the west, for the face of the dead man was almost always to the setting sun. If his head was placed to the south as it generally was, then he was laid on his left side ; if it was to the north, then he was on his right. Of his personal everyday religion we know nothing except that, as might be expected, he had a belief in the efficacy of amulets such as figures of hippopotami, and that certain animals were revered ; for we find that gazelles and oxen were sometimes ceremonially buried in graves of their own. A belief in a primitive mother-goddess is thought by some to be indicated by the female figurines placed with dead persons.

Of the Tasians, who seem to have preceded the Badarians, we cannot yet venture to say much. Their remains are few and poor, and insufficient for the safe advancing of theories. Certain points differentiate them rather sharply from their successors. The first thing that drew special attention to the graves was, as usual, the pottery. The typical form is a jar having a small flat base, wide mouth, and a rather sharp angle at the bulge (fig. 2). The ware is greyish with black patches, and shows a vague and coarse rippling which is vertical. In all these respects it differs from the Badarian. There is sometimes, but rarely, a definite irregular black band round the rim. One polished red rectangular bowl with vertical rippling seems to be Tasian ; if so, it is the only instance so far of Tasian pottery which is not grey or black. The palettes are of alabaster or limestone, more or less rectangular, without any notches. Such are never found in Badarian graves. One slate

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palette only is Tasian ; it is plain like the early Badarian. Of beads so far we have none except one small cylinder of ivory and one made from a segment of bone-shaft. Strings of Red Sea shells are however common. The few skulls that we have in good condition are much rounder than the Badarian or the predynastic ; they have broad faces and square jaws, quite unlike the later type (fig. 3). The graves, strangely, are often wider and deeper than the Badarian, with a niche in the side to receive the pot.

Of particular interest is the association of these people with the 'beaker' pots with flaring mouths in black ware ornamented with incised designs filled in with white. So far none has been found in a Tasian grave, but many fragments and two more or less whole have come from village sites (fig. 2). In no less than five different places these



FIG. 2. TASIAN POTTERY FORMS. Scale 1:6
Drawings by Mrs W. M. Brunton

fragments have been found with polished celts, either of hard limestone or greyish green igneous rock. One Tasian grave, typical in its form and its pottery, quite undisturbed, was found by Dr Sami Gabra last winter near Deir Tasa. Under the matting were two limestone celts. We can thus connect the Tasians with the celts and also with the associated beakers, a connexion we had always surmised, but of which there had so far been no proof. The celts and the beakers have not been found associated with definitely Badarian objects, with one notable exception. The very first Badarian grave that we ever found (at Qau in 1923), quite isolated under a dynastic cemetery, contained a poor and rough example of the beaker together with a very fine rippled Badarian bowl of a type and ware which we are inclined to place very early in that period. This grave may indicate an overlap of the two cultures.

It may be premature to say definitely that the Tasians preceded the Badarians, but all the evidence points in that direction. Their culture

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in all respects is more primitive ; what connexions we have are with the early Badarians ; their typical objects are not found at later times, as far as we can judge ; and we have found what may be a Tasian grave underlying a Badarian. All we can say with perfect certainty is that the Tasian graves are much older than the Third or Fourth Dynasty ; for the first burials that we discovered were underlying well-dated pot burials of that period.

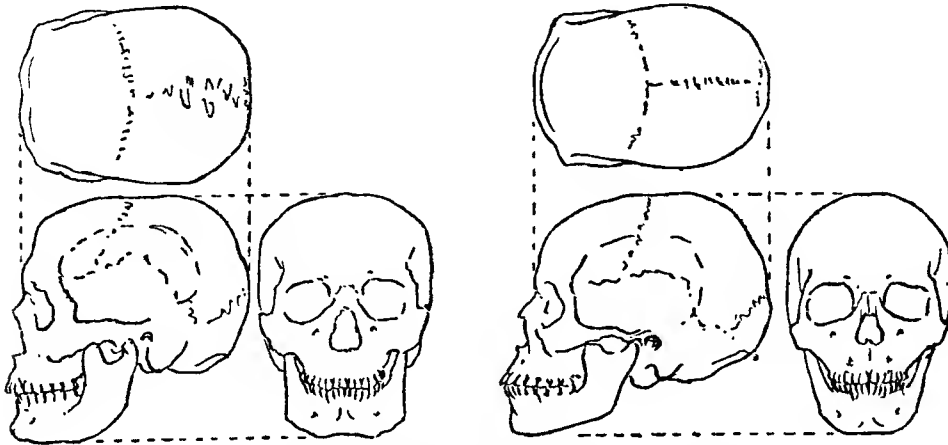


FIG. 3. TASIEN AND BADARIAN SKULLS CONTRASTED. Scale 1 : 6

Drawings by Mrs W. M. Brunton

We have so far no linen, and no specimens of grain. But a gritstone grinder found in a grave may imply that they were agriculturists. As however the remains have not been fully studied, and as further discoveries may throw more light on this new and most interesting phase of early Egyptian civilization, it is premature to theorize about these people who may be found to have affinities with the early inhabitants of North Africa, the Iberian Peninsula, and other parts of Europe.

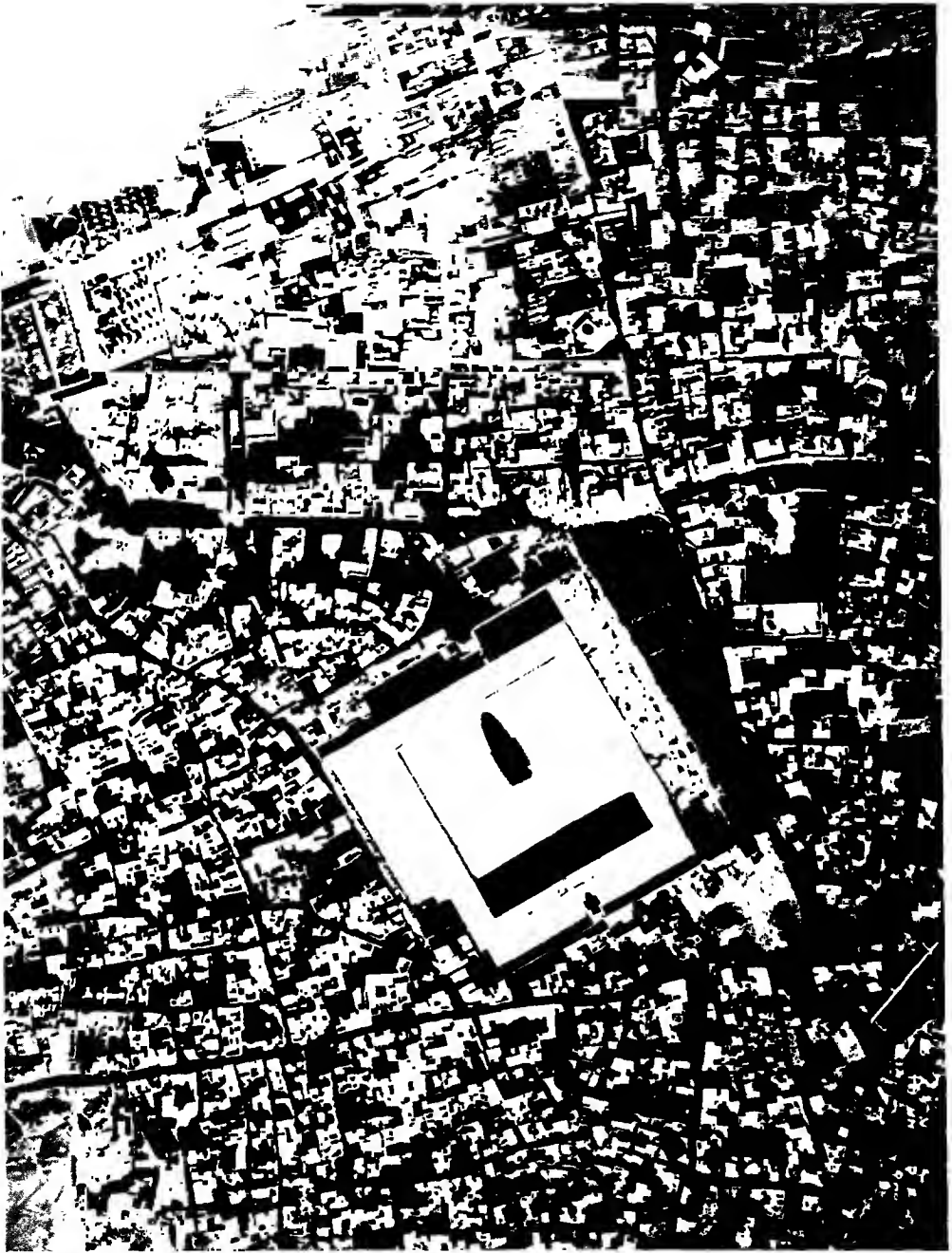
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AIR-PHOTOGRAPHS FROM CAIRO

The ancient mosque of Ibn Tulun, which lies in a squalid quarter in the south part of the walled city of Cairo and is illustrated in plate 1, has a three-fold claim on our interest. It is of enormous size, as the photograph plainly shows ; it is the oldest mosque in Egypt which preserves its original form and aspect ; and it is of considerable importance in the history of architectural development. It was founded in 868 by Ibn Tulun, who in that year had become Governor of Egypt. He was the son of a Turkish slave in Baghdad, but had been well educated in that city, and in the neighbouring town of Samarra he received some military instruction. The significance of this last fact has only been realized in recent years. For a long time Ibn Tulun's great mosque in Cairo was regarded among architectural critics as an important landmark. But discoveries and excavations in Mesopotamia and other parts of Iraq, made during the last thirty years or so by archaeologists of several nations (among them the late Miss Gertrude Bell), have revealed the existence in that country of buildings from which the general design and many of the most remarkable features of Ibn Tulun's mosque were evidently derived. Nevertheless it remains one of the great buildings of a period, approximately contemporary with the reign of King Alfred in England, when great buildings were only too scarce ; and it may still be regarded as a prototype, though not the only prototype as once was thought, of the churches with pointed arcades that began to appear in Normandy and in England centuries later.

Many mosques had been built long before 868, but, except for the group in and near Samarra, already mentioned, few of them now survive in their original form. Those at Mecca and Medina have been altered out of all recognition, while the ' Dome of the Rock ' at Jerusalem is considered by many authorities to be a building designed and built for Muslims by Christians—a very arguable point. But the mosque of Ibn Tulun is of the ' congregational ' type then already adopted at Damascus and in Mesopotamia ; that is, it provides for the ceremonial devotions of a very large congregation of people. Hence it differs from

PLATE I



THE MOSQUE OF IBN TULUN, CAIRO
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PLATE II



THE EASTERN CEMETERY, CAIRO (THE "TOMBS OF THE CALIPHS") IN CENTRE, MAUSOLEUM AND CONVENT-MOSQUE OF BARQUQ
AND FARAJ (1410 A.D.) ABOUT IT, THOSE OF THE AMIR QURQUMAS (1500-7 A.D.) AND SULTAN INAL (1553-61 A.D.)

By permission of the Trustees of the British Museum

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the 'mausoleum-mosque' or the 'college-mosque' so often built in later days, and certainly differs fundamentally from the 'Dome of the Rock'. The total area of the site occupies some $6\frac{1}{2}$ acres,* the buildings form a block about 500 feet square, and the inner courtyard (*sahn*) measures almost exactly 100 yards in each direction. It is surrounded by arcades which give the shade that is so welcome in the East. The arcade facing south-west (that is, towards Mecca), is deeper than the others, and forms the sanctuary. In the centre of its south-west wall, where a little raised cupola throws a shadow on the flat roof (see photograph), is the prayer-niche (*mihrab*) which indicates to worshippers the direction of Mecca, towards which they face during their devotions. The sanctuary and the three remaining arcades are formed of brick piers with pointed arches, and the flat roof above them is of mud resting on beams of sycamore. This roof-construction had been adopted in Mesopotamia as well as in the first mosques in Arabia, and the pointed arches are now known to have been of Mesopotamian origin. The outer and inner walls of the arches have curious zigzag battlements of brick, and are pierced with pointed-headed windows filled with delicate plaster lattices or tracery. Originally all the brickwork was covered with fine white stucco, brilliantly coloured and beautifully modelled. Some of this work still remains, as well as some delicate carved woodwork on the beams of the ceiling, where there was a long running inscription from the Koran, in decorative Kufic characters.

Almost in the centre of the north-east arcade, opposite the *mihrab*, is a rather squat minaret, of a peculiar spiral form recalling the *ziggurat* of the Babylonian ruins. This can be seen in the photograph, which also shows the domed building (*fawwarah*) of later date which stands in the middle of the courtyard and replaced an earlier building containing a fountain. On three sides of the mosque proper can be seen an open court (*ziyada*), which served as a narthex or approach to the main place of worship. I have described this mosque at length elsewhere.†

The other photograph (plate II) shows a portion of the so-called 'Tombs of the Caliphs', more correctly the Qarafah or Eastern Cemetery, which lies in the desert a few hundred yards outside the north-west corner of the medieval city-wall of Cairo. This cemetery should not be confused with the so-called 'Tombs of the Mamelukes'

* Larger than Trafalgar Square which is only 5 acres.—EDITOR.

† See *Muhammadian Architecture in Egypt and Palestine* (chapter III), by M. S. Briggs. Oxford, 1924.

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on the south of the city. Both these colloquial English names are misleading, and the 'Tombs of the Caliphs' contain the mausolea of some of the chief 'mameluke' sultans who ruled Egypt throughout the later Middle Ages, together with the tombs of their principal emirs or military nobles. The only feature of importance in this photograph is the block of buildings which stands almost in the centre of the view. This block in fact consists of two very large buildings: on the north the *madrasah* (collegiate mosque) and mausoleum of Inal, who was sultan of Egypt from 1453 to 1461; and south of it is the *madrasah* of the emir Qurqumas, commonly known as the 'Amir Kabir' (= great emir). The former building was a vast convent with numerous cells for its members. Much of it is now ruined but the fine dome over the mausoleum with its fluted enrichment is still standing, and there is also a lofty minaret of moderately successful design. The convent of Qurqumas is another large building with its dome and minaret surviving. Together the two convents form a magnificent group, the more effective because of their desert surroundings, interrupted only by the numerous mean Muslim tombs that lie near them on two sides.

MARTIN S. BRIGGS.

THE AEROPLANE AND EGYPTIAN ARCHAEOLOGY

Mr R. Engelbach, Keeper of the Egyptian Museum, Cairo, sends the following interesting note on air-surveys in Egypt:—

The value of air-photographs has long been recognized by archaeologists, both in England and abroad, as an aid in recovering the plans of ancient constructions. Indeed, in countries where the remains consist of brick walls or earth embankments now covered with cultivation, it is often only by air-photography that any efficient idea of their plan can be obtained.

The Royal Air Force in Egypt, working in conjunction with the Survey Department of the Egyptian Government, has been systematically surveying the Nile Valley, and two series of photographs are now in the Survey archives. The first (survey no. 1, with 687 negatives) was taken in 1920 at Flood Period and the second (survey no. 12, with 619 negatives) at Low Nile.

During the 1920 survey, when the party was at Luxor and Aswân, I suggested to one of the pilots that he obtain permission to take a photograph of the Aswân obelisk, which I had recently cleared, and of some of the Theban temples which lie along the edge of the cultivation.

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Permission was at once granted, and the interest of the photographs led the Director General of Antiquities, M. Pierre Lacau, to recommend the Public Works Ministry to negotiate with the Royal Air Force for a complete survey of the Luxor, Karnak and Theban areas. The result was two magnificent mosaics, which, apart from their general interest, had a twofold value: they revealed several archaeological features, as, for example, the limits of the Palace of Amenophis III at Thebes, which were previously imperfectly known, and they supplied irrefutable evidence in the local courts against the inhabitants, who are continually trying to encroach on the Antiquity Department's lands.

The Theban mosaics were soon followed by those of El-'Amârna, Edfu, El-Kâb and Dendera, the first clearly showing up the plan of the temples and houses of the immense capital of the Heretic King Akhenaten, much of which is imperceptible on the ground.

The next series of photographs taken for archaeological purposes covered the great pyramid plateau from Abu Rawâsh to Dahshûr, and they are proving of great value to the parties who are excavating in this important area.

Nowadays, in Egypt, the rules against civilian flying in R.A.F. machines are extremely strict; the good old days, when an occasional 'joy-ride' could be obtained, being definitely over. During the past winter, however, I was fortunate enough, through the courtesy of the R.A.F. and the good offices of the Editor of *ANTIQUITY*, to fly from Cairo to El-Badâri, just south of Asyût, and back. We went over the western desert and returned along the eastern. For reasons that will appear, I could have wished that the flight had been over some of the Delta sites, but the experience was of interest, since my Department was anxious to ascertain whether any new surveys would be of value and whether, in certain of the old town-sites, tracks could be distinguished from the air which might reveal the situation of necropolises or other indications of interest far out in the desert.

From my point of view, the flight was not very successful. No indications of the nature referred to were observed, and, seated in the back of a fast machine, wedged tightly with books and stores and with very little protection against the wind, I was unable to consult my large-scale maps and had to rely on memory. A further misfortune was that radiator trouble compelled us to return most of the way at 6,000 feet, from which any observation of value is impossible. The flight, as far as it went, served to show that with the exception of the area between the Pyramids of Lisht and those of Illahûn and Hawâra

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and a few sites in the Fayûm no further air-photographs are needed for the moment in the area covered, unless excavators require them for their own particular concessions.

The air-photographs most urgently needed are undoubtedly those of the Delta 'tells'. A *tell* is the result of the construction, for thousands of years, of mud-brick houses on the ruins of their predecessors. In some, the process still continues, while others, such as Tell Fara'in, the ancient Buto, stand grim and deserted, covering hundreds of acres and rising to a height of 60 feet or more above the surrounding fields.

Very little excavation has been carried out on the Delta *tells*, though in ancient times some of them were towns as important and wealthy as the better known sites of Upper Egypt. The soil-level is many metres higher than it was in Pharaonic times, and if one excavates on the present soil-level it is no unusual thing to find that the objects discovered are of Ptolemaic date or even later. To excavate a *tell* for early remains would mean descending deep below water level by the use of powerful pumps, a costly and by no means healthy procedure. The British School of Archaeology in Egypt, under Sir Flinders Petrie, carried out such excavations in a mild way for several seasons in the Ptah Temple of Memphis, and the statuary and sculptures found some 2 metres below subsoil water-level well repaid the expense incurred. If a part of Buto, for example, were excavated level by level, objects of outstanding interest would surely come to light, though possibly only after several years of barren work.

Most of the old towns were surrounded by huge brick walls, a thickness of forty feet being common. Though the walls are being steadily destroyed by the *fellahin* for use as manure for their crops, many are still traceable, those of Mendes (Tell Tmai) still rising high above the level of the ruined city. Here the temple wall can also clearly be followed. It is in this connexion that an air-survey is so urgently needed. Though the walls of Athribis (Benha), Saïs (Sâ al-Hagar), and Heliopolis have been destroyed to such an extent that it is doubtful whether air-photographs would even reveal their course, those of Xoïs, Tanis, Mendes and Buto and a dozen less important sites would well repay the time expended on an air-survey.

Flying-time is not cheap for a civilian enterprise and the R.A.F. has many activities. I have suggested, however, to those in command, the possibility of permitting observers who are out practising air-photography to take as their subject the Delta tells. I have also furnished indications showing the position of those which are of the

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greatest interest. I am certain that had I done this a year ago my Department would be in possession of photographs of most of them.

Following is a list of the aerial surveys made in the interests of archaeology. Permission to purchase photographs must be made through the Antiquities Department, Ministry of Education. The Survey Department can also supply enlargements. I am indebted to Mr H. Rowntree, Director of the Reproduction Office, for the information.

Survey number	Site	Date	Lens focus	Approx. scale	No. of negatives
2	Qurna (Thebes)	Sept. 1920	6"	1/12,000	18
10	Luxor and Karnak	7 May 1921	6"	1/6,400 1/10,500	15
11	Thebes	7 May 1921	6"	1/9,400	50
14	El-Amârna	11 April 1922	6"	1/20,000	34
15	Dendera	7 April 1922	6"	1/8,600	8
	Edfu and El-Kâb	31 March 1922	6"	1/8,000	14
18	Dahshûr to Abu Rawâsh	4 Sept. 1924 at 7.30 A.M.	10"	1/12,500	140
19	" "	24 July 1924 at 5.30 P.M.	10"	1/12,500	141

AN ARABIC WRITER ON MEDIEVAL BRITAIN

Professor Leonhard Franz contributes the following :—

The Arabs belonged, and to some extent even now belong, to what may be called a learned race. Formerly, they had many philosophers and students of all branches of science. Geography was particularly popular amongst them. Arab travellers visited different parts of Europe and wrote down what they saw and learned. To these old writers we are indebted for much valuable information.

One of these Arab students was Qazwîni, who lived in the 13th century. He is the author of a cosmography which contains references to an island which he calls Irlânda. Qazwîni describes the way in which the inhabitants of the island catch whales. Georg Jacob, who gives* a translation of the geographical chapters of Qazwîni (as far as they concern Europe), mentions that the name Irlânda perhaps means

* Arabische Berichte von Gesandten an germanische Fürstenhöfe aus dem 9 und 10 Jahrhundert. Quellen zur deutschen Volkskunde, heft 1, Berlin 1927.

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Islânda, that is Iceland. That may well be true, for the description of catching whales suggests Iceland rather than Ireland.

Qazwînî also knows of an island Schâschîn, that is Saxland, and it is clear that he means Britain, not the part of Germany now called Sachsen (Saxony). He says :—‘ Schâschîn is an island which lies opposite the extreme end of Spain ; its length is 20 days journey. The island is rich, has a vast population and much cattle. The small cattle are white ; one cannot find a black sheep. There exists no nation which adorns itself with more gold ; the commoner and the nobleman wear golden chains, and the noblemen wear bracelets on their arms, and their kings wear gold-embroidered clothes.

‘ There is an extremely beautiful kind of wool which has no equal in any other country. It is said that their women oil the wool with lard, which makes its quality superb. The colour of the wool is white or turquoise blue, and it is of great beauty.

‘ There exists also a marvellous thing which is not to be found elsewhere in the whole world. On the shore grow trees and sometimes the banks collapse and a tree falls into the sea and moves to and fro because of the waves, till a white mist springs up. That continues and the mist increases till it gathers into the shape of an egg. Then the egg takes the shape of a bird, with only the feet and the beak attached. Then when it is the will of Allah that the wind blows on the bird, feathers are produced and the feet and the beak are detached from the tree. Thus a bird is created which flies over the sea. Never is it found alive, but it is cast ashore in stormy weather, and it is found there dead. It is black, like the bird which is named al-gattâsa (the diver) ’.

One cannot find any rational explanation of Qazwînî’s account of this marvellous bird. The most likely is that he has seen or heard of the white foam on the shore and of the way the waves and the wind sometimes play with the foam. [He seems to have got hold of a variant of the barnacle-geese tale.—EDITOR].

NEANDERTHAL MAN IN ITALY

On the 1st June of this year Professor Sergio Sergi made an interesting communication to the Società Romana di Antropologia. He has kindly consented to the publication of the following summary of his paper.

Last May Professor Sergi was shown by the Duke Mario Grazioli a recently discovered skull, in which he immediately recognized the

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characteristics of the Neanderthal type. The Duke has since confided the skull to the care of the Anthropological Institute of the University of Rome.

The skull was found in a gravel pit on the estate of Saccopastore (the property of the Duke and rented by Signor Casorri), about $3\frac{1}{2}$ kilometres from the Porta Pia near where the road crosses the Tazio bridge. During the working of the pit, which has been going on for some years, fossilized bones of large animals have constantly been brought to light, and Signor Casorri has followed the discoveries with interest and sought to preserve them. Towards the end of last April the foreman came upon a human skull; it had already received some damage, but was extracted with care from the stratum of gravel in which it was found, and taken to Signor Casorri, who in turn handed it on to the Duke.

The skull, which is fossilized and fragile, is still in part covered with fine gravel cemented fast to it. Enough, however, is uncovered to allow the shape to be determined *in norma verticale*. Professor Sergi has succeeded in removing the gravel from a part of the right side of the face, but the left side is still concealed. The orbital arches and supraorbital regions are broken, and the arches of the cheek bones are destroyed. There are two large irregular holes in the vault of the skull, the larger (on the left) between the parietal and frontal bones. All the molar teeth and the second premolar are preserved on the left side, and the second and third molars on the right. The right incisor and the medial incisors are lost. All the other teeth were damaged when the skull was discovered. The mandible is lacking. In spite, however, of this damage, the state of preservation of the skull as a whole is good.

The skull is at once distinguished from those of modern man by the peculiar appearance due to the relative largeness of the facial compared with the cerebral portion, by the great degree of prognathism, and by the depression of the vault. The cerebral capacity is small, certainly not more than 1200 cubic centimetres. For this reason, and because of the fineness of the bones, Professor Sergi thinks the skull is that of a woman. The state of the sutures, which are simple in structure and all open, and that of the teeth, show that it belonged to an adult but still young person of not more than 30 years of age.

Observing the skull from the *norma verticale*, one can clearly trace the characteristic birsoidal outline, due to the peculiar retro-orbital narrowing and the gradual posterior widening which reaches its maximum in the vicinity of the external angles of the parietal bones. The curve of the outline is asymmetrical. The frontal region projects a little

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further forward on the right than on the left, and the parieto-occipital region projects further back on the left than on the right. On the right side, within the line of fracture of the frontal bone, there is a large mass of strongly cemented sand which projects for a distance of about 15mm. and formerly occupied the orbital cavity of which it still retains the contours. Owing to this fortunate circumstance, it is possible to distinguish the lateral edge of the upper margin of the orbit and to recognize clearly that the skull must have had an enormous *torus supraorbitalis* surmounted by a deep groove.

Those teeth which have been preserved (5 molars and one premolar) are large; the 1st and 2nd molars of equal dimensions and the 3rd smaller, and they show a considerable degree of use over the masticating area, especially on the inside.

The face is very large, with a morphological height equal to that of the Gibraltar skull, and an enormous orbital aperture; the piriform aperture is very large and low, and the bridge of the nose is extraordinarily projecting. The anterior projection of the nasal processes and of the surface of the body of the maxilla continue together from top to bottom so as to form a kind of snout, which is met with in no existing human type.

This is as much as can be determined from a summary inspection of the skull, which is still to some extent hidden by gravel, but it is enough to show that it belongs to the Neanderthal type.

Professor Sergi, accompanied by many of his colleagues at the University of Rome, went in person to investigate the site of the discovery, and found the actual part of the gravel pit where it had been made in exactly the same condition as it had then been, so that he was able to examine the actual conditions in which it lay. The strata revealed in the pit were a complex of sand and gravel, the alluvium of the valley of the Aniene, already well known by Roman geologists from the examination of other sites in the close neighbourhood of Saccopastore. The skull was found at a depth of six metres in a stratum of gravel rich in the fossilized remains of large mammals. The quantity of these remains found in the pit from the beginning is notable. The majority of these have been lost, but Professor Sergi, in the short time he was there, found parts of bones of *Elephas antiquus*, *Hippopotamus major*, *Rhinoceros Mercki*, *Cervus elaphus*, *Bos primigenius*, and others. The Institute of Geology at Rome contains numerous similar remains from the same strata at other places in the neighbourhood of Saccopastore. The strata of sand and gravel in which both the human skull and this

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abundance of the above mentioned species were found is the result of fluvial and lacustral deposits at the time when the valley of the Tevere was assuming its present topography.

No worked stones have been found at Saccopastore, but worked flints of the Mousterian type were found in the same strata in the valley of the Tevere and Aniene as early as 1846. These finds, which were at the time subjected to severe and often unjust criticism, are today fully vindicated by the discovery of the Neanderthal skull, which proves beyond doubt that man lived in Lazio together with the great extinct mammals in the mid-pleistocene period during the Riss-Wurm interglaciation.

Professor Sergi intends to prepare a detailed description of the Saccopastore finds.

ARUNDEL CASTLE

The following note on Arundel Castle has kindly been written by Dr G. W. Eustace, the historian of the Castle, to accompany the fine air-photograph which we reproduce :—

Arundel Castle shares with Alnwick the distinction of conferring a title. Its present owner, Bernard Marmaduke Fitzalan-Howard, 16th Duke of Norfolk, Hereditary Earl Marshal, is, by right of possession of the castle, 37th Earl of Arundel and premier peer of England.

The date of the foundation of the castle is uncertain. Tradition assigns it to Alfred the Great, since in his will he leaves Arundel to his nephew, Athelm. It is possible that it passed to Godwine, Earl of Sussex and that Harold, slain at Senlac, died its owner. The Conqueror awarded it to Roger Montgomery, commander of the centre of his victorious army. Through the treason of Robert de Belesme (Roger's elder son and 3rd Earl of Arundel) it reverted to Henry 1, whose widowed queen, Adeliza, dowered it upon her second husband, William de Albin. The male succession of the Albinis failing in the fourth generation, the castle passed through the female line to John Fitzalan, lord of the manor of North Stoke. On the death of 'the last of the Fitzalans' in 1580, their heiress brought it by marriage to the head of the great House of Howard.

The castle sustained many sieges. Taken and retaken three times during the Civil War, it was, at the close of hostilities, razed to its foundations by order of Parliament. The walls of its ancient keep, the inner gatehouse erected in 1070, the rooms above it where Queen

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Matilda renounced her claim to the throne in favour of Stephen of Albemarle and where King John of evil memory slept, together with the outer gatehouse built by Richard Fitzalan in 1295, however, escaped destruction. During the Commonwealth occupation in 1644, Lady Springate, risking her own life and that of her unborn child through floods and the tempest of a winter's night, travelled from London to Arundel to the bedside of her dying husband, the Governor of the castle and father-in-law of William Penn.

The castle has endured many restorations. Left a ruin in 1644, it remained uninhabited until 1711 when Thomas, 8th Duke of Norfolk, repaired the dilapidated apartments and erected others of more modern appearance. A further and more extensive 'restoration' was partially executed by Charles, 11th Duke. Happily his plans were never completed and it was left for Henry the 15th Duke, to rebuild the south and west fronts in conformity with history, to repair the shattered battlements, and to leave the whole as we know it today.

ROMAN VIEW OF MEMPHIS

We are indebted to Mr J. W. Crowfoot, Director of the British School of Archaeology in Jerusalem, for the following note:—

'The joint Yale-British School Expedition to Jerash was fortunate in finding several representations of towns in the floor mosaics of churches which were cleared this year (1929). There were three groups of town representations, two in a church dedicated to S. John the Baptist which was completed in 531 A.D., according to a long inscription in mosaics in front of the chancel, and one in a church dedicated to SS. Peter and Paul which was probably finished a few years later. All of them are clearly inspired by Alexandrian traditions; two of the towns shown have the name Alexandria written above them, and the names Pharos and Memphis also occur on the mosaics in the church of SS. Peter and Paul. The picture shown on plate IV was found in the south aisle of S. John the Baptist's church and immediately adjoining it was a Nilotic scene with fish and water birds, a distant prototype of which was, of course, found at Tell al Amarna. A comparison of the two leaves no doubt in our mind that our picture is a representation of Memphis'.

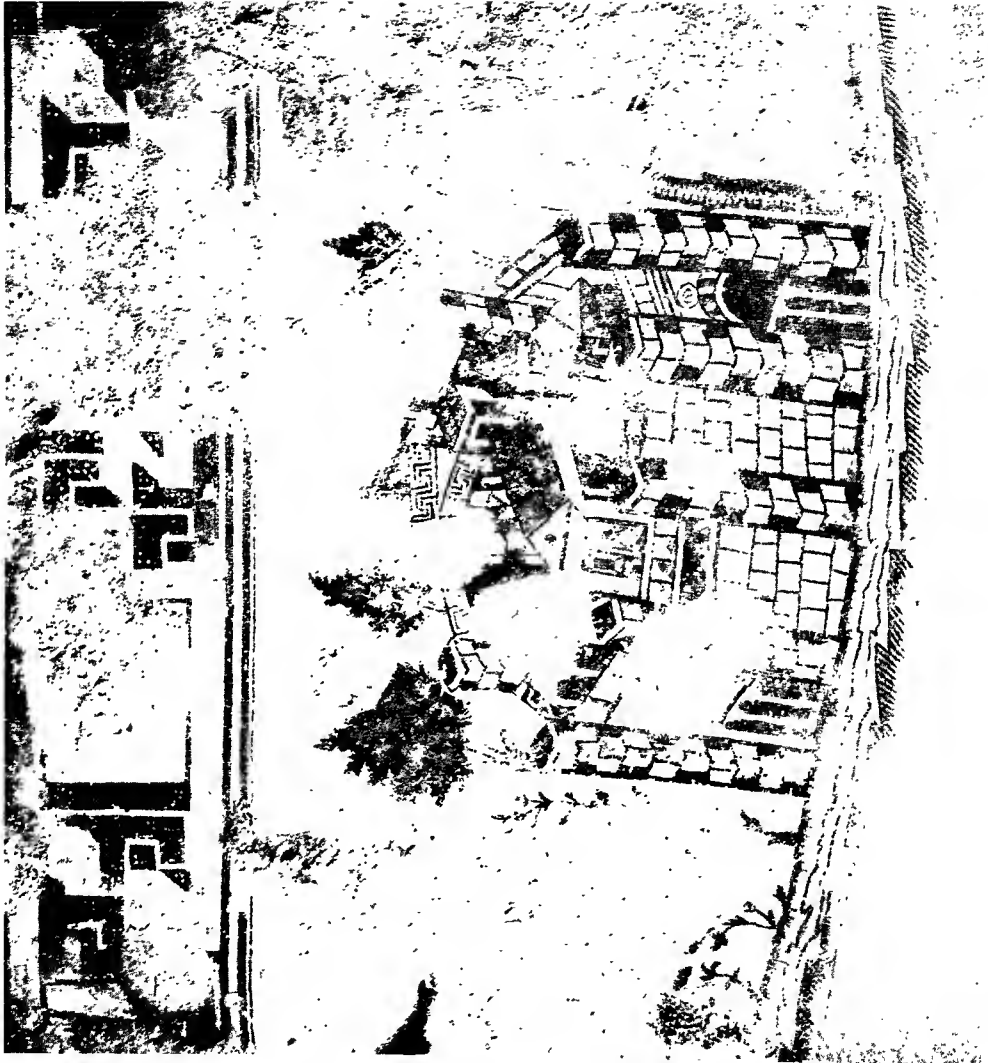
The following note on the site of Memphis is reproduced by permission from Baedeker's *Handbook of Egypt* (8th edn., 1929, pp. 153-4):—

PLATE III



ARUNDLE CASTLE.
By permission of the Air Council. Crown copyright reserved

PLATE IV



CONVENTIONAL VIEW OF MEMPHIS (EGYPT) ON A MOSAIC DISCOVERED AT JERASH (GLRASA), TRANSJORDAN

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‘ Were it not for the vast necropolis to the west of the ancient city, no one would imagine that one of the most famous and populous capitals of antiquity had once stood there. The Egyptians, from the earliest period down to the Roman imperial epoch, built their private houses of large sun-dried bricks of Nile mud, reserving better material, such as limestone and granite, for palaces and temples. But even the public buildings of Memphis have almost disappeared, as the stones were early carried off to build other edifices elsewhere.

‘ The story of Memphis stretches back to the beginning of Egyptian history. According to a very probable tradition, Menes, the first historical ruler in Egypt, is said to have founded the “white walls” of a fortress in a reclaimed district on the borders between the two ancient kingdoms of Upper and Lower Egypt, in order to keep the conquered inhabitants of Lower Egypt in subjection. To the south of this he is said to have built also the temple of Ptah, the patron god of the city. The new settlement rapidly became of importance; it was made the capital of a separate district, and the kings of the early dynasties sometimes planted their court here. Under the sixth dynasty a new quarter was founded, in which King Phiope I fixed the residence of his court, and near which the sepulchral pyramid of the ruler was situated. This quarter, as well as the pyramid, was called Men-nefru-Mire, *i.e.* “The beauty of King Mire (Phiope) remains”, and this name (in the later abbreviated form Menfe, in Greek Memphis) was afterwards applied to the whole city. Memphis attained its greatest prosperity under the monarchs of the Ancient Empire, who resided here or in the vicinity (near Gîza and Abusîr). Even under the Middle and New Empires, when Thebes became the centre of Egypt and the Theban Amun the most revered among the gods, Memphis appears to have retrograded but little. In the time of the twentieth dynasty the temple of Ptah was still the largest in the country but two. In the course of the contests for the possession of Egypt, which raged after the twenty-second dynasty, the city was captured by the Ethiopian Piankhi and by the Assyrians.

‘ Cambyses, the first monarch of the Persian dynasty, took Memphis by storm after his victory at Pelusium (525 B.C.) over Psammetichos III; and even after the foundation of Alexandria (331 B.C.) it appears to have retained some importance. Under Augustus it was a large and populous city, though its palaces, elevated on an eminence, lay ruined and deserted. Among the temples that still existed were those of Ptah, of Apis, and of a female deity who was identified with the Aphrodite of

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the Greeks. In consequence of the edict of Theodosius (A.D. 379–395) the temples and statues were destroyed, and under the later Byzantine monarchs the heretical Monophysites seem to have been very numerous here. Muqauqis, the leader of the Copts, was established at Memphis while negotiating with ‘Amr ibn el-‘As, the general of ‘Omar. The Mohammedan conquerors transferred their residence to the right bank of the Nile, opposite the northernmost part of Memphis, using the well-hewn blocks which had once composed the venerable palaces and temples of the ancient city of Menes, for the construction of their palaces, castles and mosques at Cairo. But down to a late period the ruins of Memphis excited the admiration of all visitors. Thus ‘Abd el-Latif (1162–1231) assures us that even in his time the ruins contained a profusion of wonders which bewildered the mind and baffled description. After his time the rapidly dwindling ruins of Memphis are rarely mentioned’.

RHODESIAN ARCHAEOLOGICAL EXPEDITION

We have received the following report from Mr Leslie Armstrong, F.S.A., the leader of the Rhodesian Archaeological Expedition :—

The expedition proceeded to Rhodesia early in May and returned to England in September, having devoted three months to archaeological research work in Southern Rhodesia, chiefly amongst the Matopo Hills, south of Bulawayo. The results, when fully worked out, will substantially advance our knowledge of South African prehistory and provide valuable evidence relative to early racial migrations. With the assistance and co-operation of the Rev. Neville Jones of Hope Fountain, Mr Armstrong was enabled to carry out general research work over a large area of Southern Rhodesia and to make excavations in the implementiferous gravels of the Zambesi, at the Victoria Falls. The latter yielded results of first class importance and will form the subject of a joint report.

The expedition concentrated upon excavations in the cave of Bambata which, through the excellent work of the Rev. Neville Jones and Dr Arnold, in 1918, was already known to contain important deposits as well as a frieze of wall paintings numbering over two hundred examples.

Tracings have been made of the paintings by Mr Armstrong’s son, and two typical sections of the cave deposits systematically excavated. The relic bed proved to be nearly 20 feet in thickness and provided for

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the first time in South Africa a stratified sequence of cultures ranging from South African Acheulean at the base (Stellenbosch), to a microlithic industry at the top. The latter is an early phase of the Wilton culture, apparently ancestral to that of the Cape Province and which in South Africa takes the place of the Tardenoisian and Azilian in Europe.

The Lower Palaeolithic level at the cave bottom, was over three feet in thickness and rich in coup-de-poing, choppers, flakes, etc., made of a green volcanic rock and of Upper Acheulean facies. Its depth and general character suggested a prolonged occupation of the cave at this period and a long interval of time and possible climatic changes before the incoming of the South African Mousterian folk, who were the next occupants. Above this level the deposit consisted of black carbonaceous material, very compact and rich in artefacts, which continued to the present surface.

The lowest portion of this black deposit, for a thickness of over two feet, was of typical Mousterian character, containing points and levallois flakes of volcanic rock and white quartz, closely comparable in technique to those of the European caves. The Mousterian layer merged into a zone yielding striking evidence of the arrival of neo-anthropic influences, marked by the presence of typical burins in great abundance, and the general improvement and refinement in technique of the implements. Quartz and a brown chalcedony became the favourite material for these. From this point a distinctive culture was present which through a thickness of over 12 feet exhibited a steady development, and terminated a few inches below the present floor level of the cave. It is a culture essentially Upper Palaeolithic in facies and may be described as Mousterio-Capsian, the Mousterian element predominating. It is believed that this culture will prove to be typical of the Upper Palaeolithic of South Africa as a whole, as it undoubtedly is of Southern Rhodesia, though its exact horizon had not previously been determined. It is proposed to designate this 'Bambata culture'.

The characteristics are an abundance of burins of various forms, associated with a beautiful and distinctive point which, as the excavations have shown, develops from a pure Mousterian point, by well defined stages, into a slender point of almost Solutrean technique.

The microlithic industry was confined to the surface layer of the cave, and yielded not only the usual small scrapers, crescents and ostrich shell beads, but numbers of micro-burins, a tool not previously recorded in South Africa. It has been found, however, both by the Abbé Breuil and Mr Armstrong on many other sites in addition to Bambata.

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The second area excavated confirmed the first in all respects, but the Mousterian level proved to be of exceptional interest and importance. For the first foot this was of normal Mousterian character, but beneath this two distinct intercalations of neo-anthropic strata were encountered, each upwards of 6 inches in thickness and separated by a Mousterian level 6 inches thick. Beneath these intercalated layers the pure Mousterian continued to the base.

This suggests the contemporary presence in the Matopo region of neo-anthropic folk, and the older Mousterian stock, and the occupation of the cave by each in turn for a period before the fusion of the two races—or cultures—finally took place.

CORRIGENDA, VOLUME III

On page 236 we assumed that the initials W.M.C. at the foot of the notes on recent excavations in the *Journal of the Manchester Egyptian and Oriental Society* (1929), no. 14, pp. 19–25, were those of Professor W. M. Calder, but we now know they are those of Mrs Winifred M. Crompton, and apologize for the error.

We have already apologized by letter both to Mr M. R. Hull and Mr Reid Moir for the unfortunate slip on page 259, lines 13, 14, where the former's name should have been printed.

On plate x, facing p. 290, the lower figure should be numbered 20, not 19.

Page 313, line 36, *for* millennium *read* century.

The bone implement from Cheddar illustrated on the plate facing page 346 is 177 mm. long.

Page 349, line 13, *for* lonely *read* lovely, and on line 16 *for* goddess *read* god.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

An interesting account of the prehistoric village of Skara Brae in the Orkneys was published in *The Times*, 26 August (p. 8). The abundance of stone implements found proves that it must be dated to the Stone Age, and we see no *a priori* objection to associating it with the megaliths of the islands.



The late British Government threatened to cut off the miserable pittance granted to the British School of Archaeology at Jerusalem. 'M. Herriot, having visited Delos, has asked the French Finance Minister to provide for a financial vote to extend the archaeological studies of the French School'. (*Daily Chronicle*, 27 August).



A cave with wall-paintings has been found at Griegos, in the province of Teruel, Spain. (*The Times*, 24 August).



An interesting account of the Palace of Ukhaidir, one of the least known ruins of Mesopotamia, is printed in *The Sphere*, 10 August. It was virtually discovered by Miss Gertrude Bell, who surveyed it and published her plan in *Amurath to Amurath* (2nd ed. 1924, pp. 147-58). Those who wish for further information will find it there.



Chance excavations have revealed part of the foundations of the Roman amphitheatre of Chester. (*Daily Mail*, 10 July).



The British School of Archaeology in Jerusalem, working in collaboration with the American School of Prehistoric Research, under the

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direction of Miss Garrod, announces the completion of the season's excavation of the caves at Wady el Mughara, near Athlit. The largest cave, called Mugharat el Wad, contained six strata :—(1) Bronze Age (2) Mesolithic (3) three upper or late Palaeolithic deposits (4) Mousterian. This is the most complete series of early cultures yet found in Palestine. The finds include a small stone carving of a human head, found in the mesolithic stratum in association with a collective burial consisting of 10 skeletons of children and adolescents. In the lowest Upper Palaeolithic stratum (reputed to be equivalent to the Lower Aurignacian of Europe) were found two human jaws and a fragment of a frontal bone. (*The Times*, 20 July).



The strangely neglected Roman marching camp at Little Clyde, near Beattock Summit on the west coast of Scotland, has recently been visited by Mr R. G. Collingwood. It lies about midway between Glasgow and Carlisle, and may be seen from the train. It is still fairly well preserved, the north side containing two quite recognizable entrances protected by external traverses. It lies on the Roman road from England to the western end of the Scottish Wall, a road which, Mr Collingwood suggests, was perhaps 'traversed by a Roman army only once—an army of some 10,000 men, marching swiftly through the country and covering 20 miles a day'. (*Dumfries Herald*, 17 July; verbatim report of a column).



A civilization resembling that of the first and second cities of Troy was discovered at Thermi in Lesbos by Miss W. Lamb, working for the British School at Athens. The site, which was occupied from about 3000 to 2000 B.C., shows the remains of five superposed towns, and has produced well-stratified pottery and figurines as well as copper, stone and bone implements. Excavations will, it is hoped, be resumed next spring. (See also report in *The Times*, 18 July, p. 17).



A complete skeleton, in a splendid state of preservation, has been found in Stoney Island Bog, near Portumna, Ireland. It lay under 14 feet of peat on a bed of soft marl. It is being examined by an anatomist of Galway University. (*Irish Times*, 24 July).

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The Somerset Archaeological Society's excavations at Ham Hill were continued last Summer, under the direction of Mr H. St. George Gray. A section through the rampart indicated, we infer, that it was contemporary with the Meare Lake Village. (*Western Gazette*, 9 August).



A summary of Mr Henry Balfour's presidential address to section H of the British Association, delivered at Johannesburg on 1 August, is printed in *Nature*, 17 August, pp. 268-72. It is entitled 'South Africa's contribution to Prehistoric Archaeology'. Mr Balfour has studied the subject, *cujus pars magna fuit*, for 30 years, and he throws out many suggestions that may well be taken up by the future archaeologists of that vast land. The problem of the Zambezi implements is still unsolved; and if the implements antedate the cutting of the Zambezi gorge, as Mr Balfour and the majority of students think, they indicate a very great age for Man in South Africa.



In a recent discussion M. Mauss pleaded for more experiments to test the intelligence of apes, and to suggest ways in which the first tools might have been used. In particular he asked why the old story of the Orang-utang and the oysters should not be put to the test. The gap between the earliest human artifacts and the so-called tools used by, for example, chimpanzees, is still a very wide one. (*L'Anthropologie*, xxxix, p. 130).



Palaeolithic implements have been found in Anatolia by M. Eugène Pittard, on the Upper Euphrates and 'about 5 kilometres south of the little village of Adi Yaman'. (*L'Anthropologie*, xxxix, p. 223).



Mr W. J. Hemp, Secretary of the Royal Commission (Wales), reports from his own observations that 'a Montgomeryshire site known as Dinas, in the parish of Llanidloes Without . . . is fortified in precisely the same manner as Knap Hill', Wilts. The ditch is interrupted like those of Knap Hill and Windmill Hill, and we may therefore presume that Dinas is, like them, of neolithic age. (*Arch. Camb.* lxxxiv, p. 145).

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In *Nature* for 30 March last is a very interesting note by Professor Raymond Dart. It is claimed that for the first time definite proof is forthcoming that bronze was smelted in prehistoric times in South Africa. It has long been known that the copper mines of Katanga were exploited in early times, but so far there has been no indication whatsoever of the period. At a place called Blaauwbank (of whose position in South Africa Professor Dart gives no further clue) were found 'no fewer than thirty distinct furnaces . . . alongside some of them . . . small circular stacks of hand-cobbed tin and copper ore . . .'. Owing to the presence on the same farm of a lode of nickel, the bronze in question contains a large percentage of this alloy; and it is suggested that the nickel bronzes of the Old World might have been derived from South Africa. The fact that no ancient bronze implements have ever been found in South Africa is claimed as showing that the bronze in question was worked, not by the natives, but by prospectors coming from afar. That, at any rate, is the conclusion to which Professor Dart has come. We do not, however, think that the age of these finds has been satisfactorily determined yet.



The last number of the *Journal of the R.A.F. College, Cranwell* (vol. IX, no 2, autumn, 1929), is quite an archaeological one. It contains an account of the clearing of the Roman villa at Haceby by the cadets of the college, and an article on 'The Aeroplane in Archaeology' by Wing-Commander Insall, V.C., who needs no introduction to readers of *ANTIQUITY*. Wing Commander Insall's article is illustrated by an excellent oblique photograph of a kite, taken by himself with an ordinary camera. The present number, like its predecessors, contains much of general interest.



In the October number of *Man* is an account of the discovery of two beakers in a chambered cairn at Kraiknish, Loch Eynart, Isle of Skye. The chamber, however, is so small that it is to be regarded rather as a cist than a chamber. The two beakers are in the possession of the finder. The rarity of beakers on the west coast of Scotland makes this find of more than usual interest; and we hope that, in the interest of students, the beakers will find a home in a public museum.



An Anglo-Saxon cemetery has been found on the eastern slope of

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the Hog's Back, immediately outside the town of Guildford (Surrey 31 NE). A record of the facts concerning the discovery has been communicated to the Ordnance Survey by the finder.



In the course of excavations in progress at Palmyra under the direction of M. Cantineau, Dr Ingholt, and M. Gabriel the tomb built by A'ailami and Zebida, mentioned in a bi-lingual inscription of A.D. 149, has been found. A'ailami is the person to whom the large isolated column at the north-east side of the temple of Baal was dedicated, and Zebida was the father of Bolanos, the curator of the fountain of Ephka, which supplies Palmyra with water. Bas-reliefs, ten in number, representing the dead taking a funeral repast, were found, but the tomb had been completely robbed. The reconstruction of the ruins has been undertaken and with the help of the French Air Force the plan of the town has been laid down. (*The Times*, 30 July, p. 11).



The members of the Oxford Classical Association have continued their work on the site of Alchester, near Bicester. A quantity of pottery of first and second centuries has been found. (*The Times*, 31 July, p. 9).



An interesting article is contributed to *The Times* (5 August, p. 11) by Sir Arthur Evans on the results of the year's work on the Palace site of Knossos. Combined with the investigation a series of works of conservation and of explanatory reconstruction have been carried out with the aid of Mr Piet de Jong, the architect of the British School at Athens. Sir Arthur's special objective this season was the examination of the northern and eastern borders of the site with particular reference to his forthcoming third volume on 'The House of Minos'.



Reports of the season's work at Caerleon under the direction of Mr V. E. Nash-Williams, Keeper of Archaeology in the National Museum of Wales, are printed in *The Times*, 6 August (p. 13) and 8 October (p. 11). One of the most important finds was a series of decorated tile antefixes bearing, in addition to the usual Medusa heads, an equal-armed cross, with splayed ends, of the third century.

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The results of this and previous seasons' work now make it possible to suggest the following dates for the fortress :—(1) that it was founded A.D. 70–80, perhaps actually in 75, (2) in the first decade of the second century the earlier defences of earth and timber were reconstructed in stone, (3) the occupation continued until about 120, (4) the administrative buildings within the fortress were in use as late as the middle of the fourth century.



Mr S. E. Winbolt has reported the results—chiefly negative—of the excavation of Castle Hill camp, at Tonbridge. Its general character suggests an Early Iron Age date, but no burials or pottery were found and Mr Winbolt infers that the camp was one of refuge rather than of habitation. (*The Times*, 30 August, p. 7).



A photograph of the excavations at Kish, which have now reached virgin soil at a depth of 60 feet from the original surface of the mound, was printed in *The Times*, 30 August, with illustrations of some of the copper vessels found in the lower strata.



As the result of further excavation on the Roman wall, at Birdoswald, under the direction of Mr F. G. Simpson, Mr I. A. Richmond, and Mr E. B. Birley, some interesting data with regard to the history of the fort have been established. These are shown by the coins and pottery and more particularly by two building inscriptions of the first importance. The fort was built originally about A.D. 125, and was restored by Severus between 205 and 208. The second inscription, dated closely to about 305, records that the Praetorium, the Headquarters and the artillery platforms had been restored. The particular interest of the latter is that such a record of admission of destruction is unparalleled among Roman inscriptions. (*The Times*, 31 August, p. 8).



An account of the antiquities of the Poltalloch district of Mid-Argyll and the finds which have been made from time to time is contributed to *The Times*, 20 September (p. 17) by Mr J. H. Craw.

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The excavation of Meare Lake Village, which has been in progress for several seasons under the direction of Dr Arthur Bulleid and Mr H. St. George Gray was continued in September. (*The Times*, 3 September, p. 8).



An exhibition of photographs and reproductions of the eighth century mosaics recently found in the Great Mosque at Damascus was held at the Louvre in September. The mosaics now recovered by M. Eugène de Lorey, Director of the French Institute of Archaeology and Musulman Art in Damascus, were due to the Omayyad Caliph Walid I (705-715) who transformed the Byzantine church of St. John into a mosque. At one time it was thought that the mosaics had entirely disappeared but they were found to be almost perfect when the numerous coats of thick whitewash were removed under M. de Lorey's supervision. The surface of the mosaic is over 500 square metres. The recovery of the mosaics is an important contribution to Islamic art. (*The Times*, 20 September, p. 12). In character, however, they belong, like the contemporary wall-paintings of Kusejr Amra in Transjordan, to the late classical tradition.



The *Corriere della Sera* of Milan reports the discovery of remains near Verbicaro which are part of the city wall of the ancient Lavinium, the Roman station mentioned in the imperial itineraries, and hitherto located only by these sources. (*The Times*, 26 September, p. 11).



The excavations at Richborough Castle have been continued this summer under the direction of Mr J. P. Bushe-Fox. One of the most interesting features of the work has been the uncovering of two roads, one of yellow gravel and the other of large cobbles with a central drain. The one dates from the end of the third century and the other, a reconstruction, is of about the second half of the fourth century. Below these were two other roads, of the first century. The first, which must have been laid before A.D. 70, consists of a layer of beach pebbles 10 inches thick and 23 feet wide. The second, of small black pebbles, was made about A.D. 85. A report of the season's work is printed in *The Times*, 26 September, p. 9.

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A report on the excavation of the Roman villa at Castle Hill, Ipswich, under the direction of Mr Reid Moir, is published in *The Times*, 8 October, p. 11.



Professor R. Newstead and Professor J. P. Droop have continued their investigations on the Vicarage Field at Lancaster, which they began in September 1927. The dating of the Roman occupation of the site is confirmed as from the last quarter of the first century to the latter part of the fourth. (*The Times*, 8 October, p. 11).



During the winter session of the University of London Dr R. E. Mortimer Wheeler is giving courses of lectures on British archaeology from the earliest times to A.D. 100, Roman Britain, Saxon Britain, and Archaeological Field-work in Britain. Many of the lectures and demonstrations are given at the British and London Museums.



Two exhibitions of interest to antiquaries are announced by the Burlington Fine Arts Club of Savile Row, London. The first, which will open in December 1929, will include a small collection of Romano-British objects chosen for their artistic value. This is believed to be the first occasion upon which Romano-British work has been approached exclusively from this stand-point. The second exhibition will be open next May, and will represent 'Art in the Dark Ages in Europe (*circa* 400-1000 A.D.)'. This exhibition will naturally be of a more ambitious character, and, if suitable examples are obtainable from abroad, should be of exceptional interest.

PLATE I



DOLMEN (No. 4) IN PULNEY HILLS, INDIA
Ph. FATHER L. V. NEWTON

PLATE II



DOLMEN (No. 5) IN PUTNEY HILLS, INDIA
Ph. FAHER L. V. NEWTON

Reviews

MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA. No. 36,
The Dolmens of the Pulney Hills. By Rev. A. ANGLADE, S.J. and Rev. L. V.
NEWTON, S.J. *Government of India, Calcutta*, 1928. pp. 13 and plates II—VII
(3 of 18 photos, 2 of 25 plans, 1 map, 1 of 2 sketches). 4s. (2 rupees 4 annas).

This pamphlet gives a summary account of certain neighbouring groups of dolmens in the Province of Madura in southern India. Isolated chambers are rare exceptions, the great majority being set up as close together as possible, in groups of from 2 to 14, the usual number being 6 or 7. Each group is surrounded and supported by a dry-built wall of squared stones rising to the level of the capstones, and usually built in four straight sections; one angle of the enclosure so formed is generally a right angle. Very exceptionally the walls are polygonal and enclose chambers radiating from a centre; in most cases however the chambers are fitted closely and regularly into the enclosure and there appears to be no attempt at orientation. The average length of the walls varies from 36 to 20 feet on the longer sides, and from 31 to 14 on the shorter ones.

The vertical slabs forming the chambers instead of being firmly set up are generally placed directly on the bare rock and held in position both by a horizontal floorstone, by the capstone and by side packing stones placed between neighbouring chambers or the enclosing walls.

The chambers vary much in size; from 6 to 14 feet in length, 2 to 5 feet in width and 3 to 7 feet in height; they are often accompanied by one or more 'rectangular [stone] boxes of an average size of 3 ft. 8 in. to 2 ft. in length, by 3 ft. to 1 ft. 9 in. in breadth, and built on the same principle as the larger rooms'. Sometimes, when the boxes are absent, one end of the chamber is partitioned off by a cross slab.

What appear to be groups of primitive circular hut foundations are found in several places close to the dolmens and also low circles of stones and earth, some of which may be sepulchral and others the enclosures of abandoned villages.

None of the grouped chambers were found to contain ancient pottery, bones, or other datable objects. The authors hesitate to class them as sepulchral, and make a distinction between them and certain 'buried dolmens' sometimes surrounded by circles of stones, and in one case having port holes worked in one of the supporters and in an internal division. These single chambers they consider to have been 'burial places for the owners of the numerous groups of ordinary dolmens'. The use of the pamphlet would have been simplified by the inclusion of a classified schedule of the monuments of which it treats, as the arrangement makes reference from the plans and illustrations to the text far from easy.

The monuments have suffered, and are still suffering, from wholesale destruction, especially at the hands of road makers, and there will be universal agreement with the hope expressed in the final paragraph 'that systematic researches may be undertaken . . . and that some steps may be taken without delay to protect . . . what still remains of our interesting Dolmens'.

W. J. HEMP.

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SOME ITALIAN SCENES AND FESTIVALS. By THOMAS ASHBY, D.LITT., F.S.A., late Director of the British School at Rome. *Methuen and Co.* 1929. pp. xv, 179, and 26 illustrations.

Few Englishmen know modern Italy better than Dr Ashby, who has written a pleasant, readable book, which covers more than its title, as it gives much historical and archaeological description of the places in which the religious ceremonies that he records take place. He depends chiefly on his own observation and camera, but he has availed himself of the accounts also of other witnesses of the processions, both past and contemporary. The Italian person of quality in Browning regarded it as 'the greatest pleasure in life' to come into the city to see

Our Lady borne smiling and smart
With a pink gauze gown all spangles, and
Seven swords stuck in her heart

but Dr Ashby takes his readers to the small country towns and villages, where the most interesting of these festivals take place, though unfortunately the picturesque local costumes are more and more being given up.

The connexion between these rites and the pagan cults or magic which have preceded them is brought out, such as the leading about of the ox at Loreto Aprutino, and the prophecy that there will be a *bella stagione* because the Madonna's veil at Sulmona came off *subito*. One is reminded of the necessity for the Holy Dove to work smoothly at the Scoppio del Carro at Florence, if the local vines are to prosper. It is altogether a valuable record of what may be in danger of passing away, and we must agree with Dr Ashby that while we may gain much (from modern ideas, modern improvements and modern civilization) 'we are also losing much that is irreplaceable'. A few slips may be noted: *temenoi* (p. 3), and *cannephoroi* (p. 102) are not correct classical Greek forms; Boniface IX was no longer pope in 1407 (p. 57); Henry of Cornwall was the son of Richard, King of the Romans—the reference to his father as Richard I (p. 135) suggests Coeur de Lion. It is a pity also that an agreeable style should be marred by occasional slipshod English, such as 'different to', 'between each verse', and the split infinitive; the statement also that in Sardinia the parish priests are the 'real fathers of their people' is open to a misinterpretation which was probably far from the author's thought.

REPORT OF THE COMMISSION ON TYPES OF RURAL SETTLEMENT (Union Géographique Internationale). *Montgomeryshire Express, Ltd., Newtown, Mont.* 1928. pp. 130, illustrated. (Price not stated).

This Commission is the outcome of a paper read by Prof. Demangeon at the International Geographical Congress at Cairo in 1925. The object is to discover the reasons why in some districts the rural population is grouped in compact villages, while in others it is scattered in isolated farms and hamlets. The Commission consists of Prof. Demangeon (France), Prof. Fleure (Great Britain), Prof. Biasutti (Italy), and Prof. Michotte (Belgium), with power to co-opt not more than three additional members. They have made a beginning by issuing the Report under review, which consists of a collection of reprints of papers, both in English and French, by various workers.

Prof. Demangeon himself makes the most important contributions in the form of (1) a questionnaire defining in detail the scope of the problem, and (2) a paper which discusses the question in a sane and systematic manner from every possible point of view. Though the subject, is, perhaps, primarily geographical in nature, it has a very close

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bearing upon social and economic history and upon archaeology, especially as it is closely related to ancient field-systems and methods of agriculture. Prof. Demangeon traces the distribution of the two types of settlement throughout Europe and Asia and elsewhere, a proceeding which would have been rendered much more intelligible had it been accompanied by a map, as the average student's knowledge of geography is hardly sufficient to enable him to picture, for instance, the relative positions of numerous small European towns such as Oglia and Adda, unless he happens to have been there himself.

This contributor next discusses the possible causes of this distribution. Under the heading of natural conditions he considers the influences of contour, soil and water-supply; under that of social conditions he cites original tendencies, ethnic traditions, the need for defence, and agrarian systems. Then under the heading of agricultural economy he describes the conditions of nomadic agriculture, periodic redistribution of arable land, fixed possession of land and specialized forms of cultivation. He then goes on to describe the various types of agglomeration and dispersion of settlements. Under the former are villages associated with open-field cultivation, villages with fields contiguous to the dwellings, and villages with fields separated at a distance from the houses of the farmers. Under the heading of scattered or dispersed habitations he distinguishes ancient primary dispersion, intercalary, secondary, and recent primary dispersion. The whole subject is considered systematically, and one is left with the feeling that, though he admits that there is much yet to be learnt from regional surveys, the tendency is for grouped settlements to give way to scattered farms under the influence of more progressive and enlightened forms of agriculture, while such villages as survive serve only the purpose of local trade.

Among the other papers E. G. Bowen contributes a stimulating and suggestive study of the rural settlements in south-west Wales, wherein he attempts to correlate the different types of settlement with the various racial types of their inhabitants. This idea should be worked out in other areas also, to check the results arrived at.

E. Thurlow Leeds has a useful paper on the distribution of prehistoric settlements in the upper Thames basin, illustrated by distribution-maps of the various periods. R. U. Sayce describes the dissemination and agglomeration of habitations in the recently colonized area of South Africa, and H. King deals with the geography and geology of the settlements in south-west Lancashire. The remaining papers comprise descriptions by Miss S. Harris of the village community in Alderney and of the field-systems in Mediterranean lands and in the Atlantic coastal lands of south-west Europe, and also a detailed description of the Highland open-field system by I. F. Grant.

The whole report is a useful contribution to science. Criticisms are few and for the most part unimportant, but we cannot overlook the lack of an index, without which a scientific work resembles a bucket without a handle—its immediate function is unimpaired but its manipulation is rendered more difficult.

E. CECIL CURWEN.

WAR AND THE CHASE. A handbook to the collection of weapons of savage, barbaric and civilized peoples in the Horniman Museum. *Second edition.* 1929. 6d.

It goes without saying when the author of a handbook is Mr H. S. Harrison that it is all a handbook should be, clear, concise and informative. In this excellent little production the author demonstrates the evolution of weapons as distinct from their independent invention. It can be recommended to all who are interested in the subject.

R. C. C. CLAY.

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LECTURES ON EGYPTIAN ART. By JEAN CAPART. *With a preface by LUDLOW BULL. pp. 290, 188 illustrations. (Price not stated).*

This series of six lectures by the most popular of popularizing Egyptologists does not pretend to go very deeply into the history and meaning of Egyptian art. M. Capart's friends know well enough that he can be far more profound and instructive when he wishes. The book is a first class example of that excellent and instructed journalism about Egyptian antiquities which, alas, sometimes arouses the envy of the serious writer by the success of its appeal when more erudite works remain unprinted or unread. That M. Capart neglects no means of interesting his audience is shown by his loyal but determined use of the visit of H.M. the Queen of the Belgians to the tomb of Tutankhamon in lecture v.

For these lectures were delivered before audiences to many of which the romance and excitement of archaeological discovery and the glitter of the precious materials were of as much interest as the rules and principles of the art of one of the greatest nations of Antiquity. It is difficult therefore to criticize a book clearly written for the uncritical reader, in whom however it will arouse an interest denied to a more abstruse work. M. Capart has the art of picturesque writing even if he sometimes lays too great a stress on the personal side of the matter. The discoverer (even the excavator of golden deeds) should always be less than his discovery especially when, as in Egypt, there is the element of chance—the chance that something *was* left to be found after all these centuries of destruction and tomb robbing. Does not M. Capart tell us how near the tomb of Tutankhamon itself came to not being discovered at all? and is it not perhaps significant that the contents of this very tomb should have given us but the shadow of the Egyptian art of the period? For, as M. Capart points out, these delicate and profusely ornamented *simulacra*—these war chariots which could never have been driven into battle—these beds and chairs which could hardly have been used except by a disembodied spirit—are but the ritual imitations of the more substantial and more valuable objects of Egyptian life. Certainly as we go backwards from the 18th dynasty the funerary furniture approximates more and more to the things actually used by the living. Compare the chair of Hetepheres the mother of Cheops and the stone vessels of the earliest dynasties with the lavishly decorated but flimsy furniture and the extraordinary fretwork alabasters of the tomb of Tutankhamon. Surely over-ornamentation and misuse of a material are signs of artistic decadence. The purpose of an object and the natural beauty of a material should never be lost in the expression of the cleverness of the craftsman. There are of course in this tomb many examples of art in the highest sense but these are almost all objects which were, or could have been, used by the living. There are an ivory casket—the walking sticks with the handles carved with foreign captives—the daggers and jewellery—all these are wonderful. But the returning tide of religious convention had almost choked the great artistic movement of the reign of Akhenaton. Egypt had perhaps already given the world her best by the end of the Middle Kingdom; in inlay, glass had already replaced the semi-precious stones in the time of Tutankhamon. Hereafter, save for a brief experiment in Saitic times Egypt had exhausted her artistic gifts and remained strangely uninfluenced by the Greek art of which she may have been a remote ancestor.

In a book translated from a foreign language there must be a few minor errors. For example on page 192 'atmospheric agents' should be 'atmospheric agencies' while on the previous page 'dissimulated' should be 'concealed'. The

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cornet bearer on page 118 carried a Mycenaean 'filler vase' and not a musical instrument or even the pastry receptacle of whipped cream. On the cover of the book the Uraei have somewhat mysteriously turned into blue birds, but this is probably neither the fault of M. Capart nor of the Uraei. Mus.

BABYLONIAN ART. By SIMON HARCOURT-SMITH; *with 76 plates in collotype*. [Kai Khosru monographs on Eastern Art; General Editor, ARTHUR WALEY]. *Ernest Benn, Ltd.*, 1928. 21s.

A monograph on this subject was badly needed, and the only complaint we have to make of this one is that it is too slight. The author does not claim to touch more than the fringe of the subject; but he does so in a way that makes one wish for more. He is alive to the importance of cycles of development in art and in civilization, though through our still scanty knowledge, it is, as he says, difficult to detect the different moments of climax in either. He divides the art into four main periods:—before Hammurabi (?—2000 B.C.), Hammurabi to the Assyrian age (2000—1000 B.C.), the Assyrian age (1000—600 B.C.) and the Neo-Babylonian and Persian ages (600—323 B.C.). The text is short (about 15,000 words only) but composed in a pleasant style, with frequent illuminating analogues and observations; such as that the Persian conquerors of Babylon were not true orientals;—a fact which is plain also in the later history of Mesopotamia. But we cannot be too grateful to all concerned for the beautifully reproduced illustrations. By producing what is really a small and well-arranged atlas of Babylonian art, with a short explanatory text, the author and publisher have done good service to the intelligent study of art in a region where the record is continuous for at least 5000 years. Such a region (paralleled only in Egypt) is of paramount importance in the history of art critically considered. For this reason we regret the absence of precise dates (when available) on the plates themselves, or of any information about the present abode of the objects illustrated. The entire absence of scales is also noticeable, though not perhaps a very serious omission in a book of this kind.

The series includes also monographs on Byzantine Art (by Hayford Peirce and Royall Tyler) and on Scythian Art (by Professor Gregory Borovka).

A HISTORY OF ARCHITECTURE. By A. D. F. HAMLIN. *Longmans' College Histories of Art Series*, ed. by JOHN C. VAN DYKE. New edition, revised, 1928. pp. xviii, 492. 10s. 6d.

This new edition of Professor Hamlin's book places in the hands of the public a remarkably compendious volume. The history of architecture is dealt with from the time of prehistoric dwellings down to the skyscrapers of to-day; and the author does not confine himself to Europe and America, but considers the buildings, past and present, of the whole civilized world.

In a book in one volume on this scale, obviously the subject matter must be rigorously compressed, and this has been accomplished so successfully that the volume is stiff reading, simply because of the tremendous amount of matter that it contains. Long lists of buildings illustrating the various styles are appended to every chapter, together with bibliographies. In a book written across the Atlantic, without ready access to most of the buildings mentioned, some errors are inevitable. For instance, as examples of the most important prehistoric monuments in Britain we read of 'the great tumuli of Bartlow and Silbury Hills'. The Bartlow Hills are Roman and Silbury has never been proved to

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be a tumulus. Again, tennis was not, so far as we know, played in Rome during the Empire, so that tennis courts can hardly have been constructed, as Mr Hamlin suggests, as an adjunct to large Roman houses. We are bidden to note the round piers of Bristol cathedral, but no one knows what that long vanished nave was like. Probably Malvern abbey should be read instead.

With the Author's opinions on many subjects some students may disagree ; perhaps when he describes English Perpendicular work as overloaded with ornament, or when he ascribes ballflower ornament to the Early English period, or in his judgment on the work of some of the Renaissance architects. The book is occasionally too technical for the general reader, who will be discouraged to find the Temple of Fortuna Virilis described as 'tetra-style prostyle pseudoperipteral'.

Rather less space might well have been devoted to cathedrals and rather more to military architecture, which has to be satisfied with one meagre paragraph, while the less important, but almost more characteristic buildings, such as parish churches, might have received more notice. But these are only details, and do not materially damage a most interesting and complete work, the ideal companion for anyone travelling round the world with a knapsack.

The book has many illustrations. The diagrams are good, but the photographs are sometimes indistinct. There are misprints on page 34 line 5, page 350 line 2, and page 397 line 6.

DINA PORTWAY DOBSON.

LA BOHÈME À L'ÂGE DE LA PIERRE. 1924. LA BOHÈME À L'ÂGE DU BRONZE. 1928. By ALBIN STOCKÝ. *Prague: Jan Štenc.*

Prehistoric researches have been vigorously and successfully prosecuted in Bohemia for many years. But as long as their country formed part of the Austro-Hungarian monarchy Czech archaeologists published their results exclusively in their own tongue with the consequence that their articles were inaccessible to most of their colleagues. Now that national aspirations have been satisfied, this policy has been abandoned and an appeal is made to a wider public. One of the most fruitful expressions of the new orientation is represented by the small series initiated by the Keeper of the Prehistoric Department in the Bohemian National Museum. Each volume consists of a number of plates (fifty for the Stone Age and fifty-nine for the Bronze Age) illustrating the principal types of pottery, implements and ornaments, grouped by cultures and arranged in an approximate chronological order. Each volume is prefaced by a short descriptive introduction indicating the chronological position and relations of the several cultures. On the actual plates only the site of discovery and the scale of each object is given. For anyone who wishes to get a general idea of the types current in Central Europe during the Neolithic and Bronze Ages, no better introduction can be suggested.

V. GORDON CHILDE.

PRASSITELE. By PERICE DUCATI. *Florence: F. le Monnier. n.d. 10 lire.*

This handy little volume forms part of a series of biographies of a variety of personages :—Giotto, Boccaccio, Vittoria Colonna, etc., and why Praxiteles should have been selected for this particular honour is not quite clear. We may, however, be grateful for the chance which has led to this choice, for the result is an excellent life of the sculptor and a brief critical account of his works, with adequate indexes and fairly well illustrated, by a very competent scholar whose works on Etruscan art have already been brought to the notice of the readers of ANTIQUITY.

T. ASHBY.

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PRÄHISTORISCHE FLACHGRÄBER BEI GEMEINLEBARN IN NIEDER-ÖSTERREICH (RÖMISCH-GERMANISCHE FORSCHUNGEN, Band 3).
By JOSEF SZOMBATHY. Berlin: Walter de Gruyter. 1929. pp. 78, 26 plates.
18 marks.

In Lower Austria, Moravia and eastern Bohemia the so-called Early Bronze Age is brilliantly represented by inhumation graves of the 'Aunjetitz' culture and the Late Bronze Age no less amply by the Lausitz urnfields. But a distinct Middle Bronze Age group comparable to the tumulus culture of western Bohemia and southwest Germany has left scarcely any traces. One natural explanation of this gap is of course to deny its existence, i.e., to assume that the 'Aunjetitz' culture continued in these regions till the Lausitz replaced it or grew out of it. Light on this problem has been expected from the cemetery of Gemeinlebarn, since it has long been known that graves of the two types were there juxtaposed, and Hoernes had even asserted a cultural continuity disclosed in the pottery. The admirable publication before us certainly reveals a number of Middle Bronze Age types in the earlier inhumation graves but leaves the question of continuity open. All the significant finds from nearly three hundred graves are here described and clearly illustrated, so that the reader can form his own opinion on this interesting question and gain an exceptionally comprehensive idea of the complete furniture of a comparatively rich cemetery lasting from Early Bronze Age and Middle Hallstatt times.

V. GORDON CHILDE.

RIVISTA DEL ISTITUTO D'ARCHEOLOGIA E STORIA D'ARTE, vol. 1,
fasc. 1. Rome: Stabilimento Poligrafico dello Stato. 150 lire yearly.

The first part of this new periodical, which is to appear three times a year, is a handsome, and, at the same time, useful and welcome addition to the long list of periodicals which every well-equipped archaeological library should contain. The first article, by Paribeni, introduces to our notice a series of drawings of the Column of Trajan, which the Institute has recently purchased. After an exhaustive examination of the other possibilities, he attributes them to Jacopo Ripanda of Bologna, who made drawings of all the reliefs, we are told, at the peril of his life.

The second article is the first of a series of studies on the antiquities of Agrigentum, in which the recent excavations financed by Captain Hardcastle are described by their director, Professor Pirro Marconi. This instalment deals with the extremely interesting archaic sanctuary of the deities of the underworld near the temple of Demeter (S. Biagio), of which, indeed, it was the predecessor, and a group of archaic altars found near the temple of the Dioscuri which has now been entirely excavated. (See *Times Literary Supplement*, 11 April 1929).

The third and fourth articles deal respectively with Roman miniature paintings of the 11th and 12th centuries and with a painter of Treviso, Pier Maria Pennachi (1464 to 1514-15).

T. ASHBY.

SUDAN NOTES AND RECORDS, vol. VII, 1928. Published at Khartoum.

The Editors are to be congratulated upon another volume of outstanding merit. Indeed, the record of this journal is one of which any country may be proud. The articles are all first-hand contributions to knowledge, written by practical men, most of them administrators, with doubtless many other calls upon their time. We can easily imagine that in time to come these notes and records will be prized as highly as are today

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the travel-books of medieval and Arab geographers ; for what they describe will then have passed completely away.

That fate, however, can hardly befall the Libyan desert, described by Messrs. Newbold and Shaw, in a most exhaustive monograph of 92 pages. Mr Newbold had already written an account of the principal archaeological results in *ANTIQUITY* (II, 261-91), and his sketch-map there was then, in fact, the most up-to-date map of this unknown portion of the desert. In the present volume he gives a detailed map of the results of the explorations of himself and Mr Shaw. It has been compiled from their observations by the Sudan Survey Department, and is on the scale of 1 : 2,000,000. In addition to their own remarks on cartography, meteorology, botany, archaeology and so forth, there are sections on barometric heights (Dr John Ball), geology (Mr G. W. Grabham), and natural history (Mr H. W. Bedford). The article is fully illustrated, and, like the others in the volume, is eminently readable.

These others range from birds and magic to bibliography and history. A bibliography of the languages of the southern Sudan, by Professor Bernhard Struck, is a valuable and practical contribution. Mr Whitehead's account of the first contact between Europeans and the southern Sudanese is one of the best of its kind we have read, and revives the memory of such men as Emin Pasha and Speke, whom we of the 20th century are apt to forget.

In the Notes, we observe a remarkable resemblance in the dolmen-like altar, dancing, and spirit-house in the Rejaf district to similar arrangements in the Naga Hills of Assam. The reviews are refreshingly sincere and actually tell us what the reviewer really thinks about the subject. We wish there were more of them.

ROMAN ESKDALE. By R. G. COLLINGWOOD. *Whitehaven News Limited*. 1929. pp. 51, 4 plates, 2 plans. 1s.

We have already noticed in these columns (I, 112) Mr R. G. Collingwood's *Guide to the Roman Wall*. Now there is another of his admirable guides to praise. Eskdale is little known and lies off the beaten track (and long may it remain there). But it holds a perfect Roman fort and a Roman building—the bath house called Walls Castle—which 'still stands to the full height of its walls'. In this respect it is almost unique in Britain ; of buildings proper (as opposed to the walls of forts and semi-subterranean structures) we can think only of the Pharos at Dover and the arch in the keep of Chilham Castle which are equally perfect ; and both of these are masked by medieval masonry. The adjacent fort of Ravenglass is associated by the author with Agricola's projected invasion of Ireland and with the dramatic incident of the Usipian mutiny. The past lives again in this modest little guide, which is really well written (as of course one expects it to be), and is also beautifully produced. It is worth buying if only for the fine contoured plan (1 : 3200) of Hardknot Castle and its environs, which shows what we may expect when surveyors are also artists.

THE STEPPE AND THE SOWN. By HAROLD PEAKE and HERBERT JOHN FLEURE. *Oxford, at the Clarendon Press*. 1928. pp. 160 with 84 illustrations. 5s.

This volume of the 'Corridors of Time' series deals with the period 2600—2200 B.C. Nomads from the south Russian Steppes are represented as moving southwards into Mesopotamia, south-eastwards into Turkestan, westwards into Transylvania and Hungary. As a result, there occurred a general dispersion of people who made painted

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pottery. The westward movement of the nomads after displacing the painted pottery people of Cucuteni A and Erosd, next set in motion the spiral-meander Danubian peasants who lived further west. The wanderings of these displaced people eventually bring them both to Thessaly, where they are found later occupying the eastern and western halves respectively of the Thessalian plain. Hence Dhimini pottery in East Thessaly and incised and black-polished wares in West Thessaly and central Greece. The painted pottery of the latter areas is however regarded as a continuation of the earliest local pottery of period A.

The view thus propounded is roughly that of Childe and Frankfort, and some such movement into Thessaly from the Danube area is likely enough, but the possibility of some common outside centre must always be borne in mind, while the date assigned to the movement by the authors involves serious difficulties. A painted pottery culture which combines both Dhimini and West Thessalian characteristics and a few Erosd sherds, has been found recently in Chalcidice underlying the remains of a black ware (Anatolian) culture, which, to judge from its analogy with Troy I, can hardly begin later than 3000 B.C. Similarly on another site in Chalcidice, in a similar context, has been found a deposit in which pottery of West Thessalian type (B period) is associated with the fine black-polished ware with white-paint decoration identical with that found in Thessaly on the one hand, and with close affinities to the Erosd pottery on the other. The inferences to be drawn from this are that, both the eastern and West Thessalian styles have a more or less common origin; that their place of origin lies somewhere near the point of junction between the Black Earth region and the Middle Danube; that since their settlements in Macedonia come to an end about 3000 B.C. their arrival in Thessaly must be earlier than the date assigned to it by the authors; consequently their departure from the Danube region can hardly be associated with the supposed destruction of Erosd, or, if it is, the destruction of Erosd must be put much earlier than 2600 B.C.

On page 57, the authors seem to imply that the trail of the Danubian peasants can be picked up in the Vardar valley by means of their spiral-meander ware. This is not so. Incised ribbon spirals appear in central Macedonia about 2000 B.C., while the appearance of the full spiral-meander ware is shown by stratigraphic evidence to have occurred about 1650 B.C., or a thousand years later than the passing of the Danubian peasants.

But even if the arrival of the immigrants in Thessaly cannot be associated with raids from the steppes about 2600 B.C., influences from that quarter are perceptible in Chalcidice at about that time. Here in strata corresponding to the beginning of Troy II have been found stone battle-axes of south Russian-Trojan type associated with fluted bone beads characteristic of south Russian graves. Evidence is thus supplied from rather an unexpected quarter in support of the author's view that the battle-axe is earlier in south Russia than in northern Europe.

The book is clearly written and admirably illustrated. Its tone is speculative and non-dogmatic, as is proper in dealing with a period where much is still obscure and fixed points few and far between.

W. A. H.

THE COLLECTED PAPERS OF HENRY BRADLEY, with a Memoir by ROBERT BRIDGES. *Oxford University Press*. 1928. pp. x, 296.

Dr Henry Bradley was associated with the *Oxford English Dictionary* for 40 years and was for many years the most eminent of British philologists. He was a scholar of the first rank, one whose writings were doubly valuable merely because it was

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he who wrote them. It was therefore a happy thought to publish a memorial volume containing some of his less accessible papers. The result is a worthy monument to his memory and a very useful and readable book. It opens with an admirable and illuminating memoir of 56 pages, written by his friend Robert Bridges, the Poet Laureate. Then follow 66 pages on place-names; 15 on lexicography; 49 on language; 37 on literary problems and studies; and 21 on conjectural emendations; concluded by 17 pages of bibliography.

Dr Bradley was responsible for more than four and a half thousand pages of the *Oxford English Dictionary*. It was the main work of his life, though it occupies (in the nature of things) only seven lines of the bibliography. These papers are his *Obiter Dicta*, many of them by-products of the main task; yet they represent in themselves a harvest of which many a scholar might well be proud.

We turn naturally to the papers on place-names, which occupy more than half of this part of the volume. We find an article on Ptolemy's Geography of Albion; one on English place-names in general; a 'bunch of guesses' on 'Some prehistoric river-names'; and some slight but pleasing shorter studies, disinterred from the *Academy* files of the '80's' and '90's'. They are worth reading for the style of their composition as well as for their contents; they show the attitude adopted by a scholar towards a dangerous but fascinating subject. If he puts forward a guess, it is supported by the facts which suggested it; but never did the author of the guess maintain it against clear evidence to the contrary. Some of his conjectures, as he called them, we in our outer darkness do not agree with; for instance, his interpretation of Acemannes-ceaster. (There is medieval evidence of an Akemanstrete in Wychwood Forest, and this can only be the Roman road now so called). But no one attempting to discuss derivations can ignore Bradley's remarks.

The book is worthily and beautifully produced.

A ZÖLDHALOMPUSZTAI SZKITA LELET=LA TROUVAILLE SCYTHE DE ZÖLDHALOMPUSZTA PRÈS DE MISKOLC, HONGRIE. By N. FETTICH. (*Archaeologia Hungarica*, III). Buda Pest (*A Magyar Nemzeti Museum*). 1928. pp. 46, 8 plates (text in Magyar and French).

It is generally stated in books devoted to the Scythians that there was an extensive occupation of Hungary by these nomads. In point of fact the material available to support these assertions was very exiguous except in Transylvania. In the Hungarian plain several of the Scythian objects, found on sites of long established native industrial settlements like Pilin and Aszód, might naturally be explained by the metal trade. Only a few graves containing Scythian objects (swords, pole-tops, etc.) were known before the war. And in these the burial rite often diverged from those current on the steppes while in the grave-goods the eastern objects were mingled with western (La Tène) and native types. Since then the list of finds has been augmented by two superb examples of the Scythian animal style in gold from Tapió Szent Márton and Zöldhalompuszta respectively. Each included the figure of a reclining deer in good Scythian style. Unhappily both discoveries were made by chance in the absence of expert witnesses. Dr Fettich carried out supplementary excavations on the site of the second discovery and satisfied himself that it came from a ruined grave under a barrow. He argues that Tapió Szent Márton had also been a burial place.

As to the age of the objects the author concludes after a scholarly analysis of the

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comparative material that his deer and the gold chain of Greek manufacture found therewith, while probably the earliest example of Scythian art yet found in Hungary must have been made in the first half of the 5th century B.C. ; in view of its worn condition its actual burial may have been a century later. His conclusion indicates the relatively late date of the Scythian occupation of Hungary and at the same time implies a lowering of the chronology for the Hungarian Late Bronze Age, inasmuch as the Early Iron Age is represented by scarcely any Hallstatt sites or cemeteries.

In addition to a lucid description of the new finds and a penetrating analysis of their stylistic affinities, Fettich gives a detailed summary of earlier finds from Hungary. Being presented also in French it will offer to the general reader an invaluable supplement to the existing Magyar accounts.

V. GORDON CHILDE.

THE OLD COTTAGES AND FARMHOUSES OF NORFOLK. By CLAUDE J. W. MESSENT. *Norwich: Hunt.* 1928. 10s.

Country cottages, like common folk, do not as a rule receive the attention that is paid to their more pre-eminent contemporaries. Stately mansions may show us to what heights the arts of a period were capable of rising, but village cottages enable us to glean a surer knowledge of the everyday life of the times. The houses of the rich may be compared to axe-hammers and jade necklaces, cottages to the flint arrowheads and fragments of cooking pots. But there is one essential difference between great houses and country cottages. Great houses were built usually regardless of expense, and expense lay for the most part in the transport of material foreign to the locality, as well as of foreign ideas in the brains of strangers engaged upon the building. Until the introduction of cheap and speedy means of transport, cottages were built by local workmen of local material, and were as much local productions as the furniture they contained. When cottages were repaired the local workmen repaired them in the style that prevailed at the time ; but within recent years, thanks to increased transport facilities, the general decadence of good taste, and, to a certain extent, to the over-taxed pockets of the owners, thatched roofs have been replaced by galvanized iron, and stone floors by concrete pavements.

The cottages of Norfolk can be classified according to the material employed in their construction, of which there are nine different kinds, namely :—brick, flint, clay lump, carstone, clunch, wattle and daub, half-timber work, re-used limestone from ruined monastic houses, and various materials broken into small fragments and inserted into wide mortar joints—a process known as ‘ galleting ’. In this book there is a chapter devoted to cottages made of each kind of material, with many references to individual specimens in the text, illustrated at the end of each chapter by plates of admirably executed line engravings. Although the plates are labelled with the numbers of the pages to which they refer, yet it is a pity that there are not references in the text to the pages on which the illustrations can be found. But this is after all a minor detail, where all else is so explicit. There is a chapter on dovecotes, and another on old village shops. This book can be thoroughly recommended.

R. C. C. CLAY.

OLD CORNISH BRIDGES. By CHARLES HENDERSON and HENRY COATES. *Cornish Studies no. 1. Simpkin Marshall.* 1928. 3s 6d.

It is indeed gratifying that the University of the South-West at Exeter has undertaken this series of Cornish studies, that it possesses such competent observers as the

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authors of this the first number of the series, and that it has still remaining in its vicinity such beautiful examples of bygone craftsmanship and good taste.

Cornwall is fortunate. Its roads are but the terminations of long travel routes, and its natural beauties but the outskirts of the beauties of Britain. As decay begins always at the core, so the blighting hand of industrialism and the ravages of the bureaucratic spoiler in the person of the highway official make their malign influence felt last on the periphery. At the present day there is an outcry against the high speed of motor traffic, and officialdom in reply widens, and at the same time mutilates, all the old bridges the width of which does not correspond with that of its red tape. Now narrow bridges are the best check to excessive speed, as anyone can prove for himself who observes the heavy traffic passing over the two narrow, but beautiful, bridges at Christchurch. But if officialdom cannot find an excuse to widen a bridge, it nevertheless goes out of its way to spoil the beauty of it. Take Wiltshire as an example. Should a coping stone of a bridge become displaced, the authorities do not set it in place again. They make this an excuse for pulling down the whole side wall, and erecting in its place a nightmare of cement and iron piping. It has been suggested that all surveyors are bachelors and that by erecting these widely spaced iron pipes they hope to facilitate the falling of children into the waters beneath. Perhaps so. At any rate it is difficult to conceive any more plausible explanation.

The authors of this valuable survey give a lucid and interesting history of bridge building, which perhaps reached its apex in the 14th and 15th centuries when the necessary funds were obtained by the selling of indulgences. Bridge building almost ceased for a time after the Reformation. The oldest bridges were of local stone, but the authors do not give an earlier date to most of the famous 'clapper' bridges than the late Middle Ages. The increase in vehicular traffic, and later the Turnpike Act, caused the precipitous tracks down the valley sides to fall into disuse, and alternative and more convenient roads to be made. For this reason some of the older bridges have been spared.

The bridges on each of the rivers are treated seriatim, and an exhaustive account, so far as diligent search could procure it, is given of the history of each individual bridge. This book is illustrated by many excellent photographs. We hope that other counties, if they possess any bridges as yet unspoilt, will follow the example of Cornwall before it is too late, and, if they are lucky, will inveigle the assistance of the authors of this excellent little survey.

R. C. C. CLAY.

THE ORIGINS OF AGRICULTURE. By HAROLD PEAKE, M.A., F.S.A. *Benn's Sixpenny Library*. 1928. pp. 78.

The publishers are to be congratulated in being able to produce such valuable material at so modest a price as sixpence, but the subject is dealt with in a manner worthy of better paper and a more permanent form. We have had our own copy specially bound in buckram, and that is, perhaps, greater tribute than mere words of praise. Mr Peake is acknowledged as the greatest authority on this subject, and he discusses in six well-written chapters the problems as to where, when, and how agriculture first began. The respective claims of Africa and Asia as the birthplace of this great art are dispassionately sifted, and the matter is decided—quite rightly, we feel—in favour of Asia and the plains of Mesopotamia. The author confines himself to the question of the origin of the cereals and does not deal with methods of agriculture. A bibliography completes a thoroughly useful book.

E. CECIL CURWEN.

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ANTE OCULOS. Pictures useful for classical teaching in schools. With an appendix on the use of lantern slides. By JOHN PENOYRE. *Advisory leaflet no. 3. Issued by the Councils of the Societies for the Promotion of Hellenic and Roman Studies. Oxford University Press. 1929. 2s 6d.*

This little pamphlet should be extremely useful to all those who teach Classics, or who have need of illustrations of classical subjects. Its title is the only part of it written in a learned tongue ; and the contents are a comprehensive and excellently classified and annotated list of publications. The headings chosen are Wall Pictures, Illustrated Books, Museum Photographs, Picture Postcards, Catalogues, Guide Books and Local Works, Lantern Slides. Some of the compiler's comments are illuminating, some caustic, but all admirably brief. The exhibition of the pictures on which this list is based by the Councils of the two Societies concerned and which terminated recently must have been very stimulating and informing. The privilege of access to such abundant material should alone be enough to increase the membership of the two Societies.

For a paper-covered pamphlet of sixty pages half a crown seems rather a large price.

DINA PORTWAY DOBSON.

BULLETIN DE LA SOCIÉTÉ POUR LA CONSERVATION DES MONUMENTS HISTORIQUES D'ALSACE. *Series II, vol. XXVI. 1926.*

By far the most interesting of the articles is that on the prehistoric, Roman and later earthworks of Alsace by M. Robert Forrer, to whom this number of the Bulletin is dedicated in honour of his sixtieth birthday. It is a long and scholarly article, and it testifies to the many years of intensive study undertaken by the eminent Conservateur du Musée Préhistorique et Gallo-Romain de Strasbourg.

Having shown that a number of so-called camps are in reality natural formations or dumps, M. Forrer goes on to treat of structures whose purpose was a peaceful one, such as boundary walls, dams, cattle-folds, etc. Certain works, originally peaceful in purpose, may have become places of refuge in times of anxiety. Protecting earthworks of sacred sites, earthworks with the name of 'Dun', those with the name of 'Rath' (e.g. Argentorate), and with the name of 'Schar' (e.g. Scharrachberg) are given separate chapters. There is an interesting chapter on the materials employed in the construction of earthworks, and chapters on the various types of earthworks according to their modes of construction.

M. Forrer emphasizes that in Alsace there is no regular development from a primitive type—there being many different types varying with the local geology and the customs of their builders. He makes four categories of neolithic 'enceintes' corresponding to the four geological regions of Alsace :—(a) Rhine Basin : palisades surrounding pile or raft habitations of peoples who lived by fishing and by the snaring of birds, and who were to a small extent engaged in commerce ; (b) Loess Plain between the Rhine and the Vosges : ditches and ramparts with palisades protecting pit and hut villages of tribes engaged principally in agriculture ; (c) region between the loess and the Vosges : stone walls round settlements at the heads of valleys or on the plain ; (d) mountainous region in the north and west : walls of large stone blocks interlaced with timber and carrying wooden towers situated above the steep faces of the rocks. Some of the large inhabited camps and boundary walls are ascribed to the neolithic period. It is difficult to say which types of earthworks were indigenous and which were importations following the many invasions ; but the majority were erected in the face of invaders, for example in the transition period between Bronze Ages II and III when invaders came from west to east

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towards the plains. Later the line of the Rhine was menaced at the transition period between the Bronze and Iron Ages—the period of the building of great earthen fortresses such as Leutenheim. Certain large artificial mounds along the Rhine may have served as foundations for wooden guard houses although they were most probably originally all sepulchral, and were made at the end of the Hallstatt period to protect the river passages (e.g. Osthausen). Earthworks attributed to the XIIth Legion were constructed of earth and wood with v-shaped ditches. The ramparts were reinforced with stone at a later date. During the occupation by the VIIIth Legion there was a period of comparative peace and prosperity, and as a consequence few new camps were constructed.

There is an excellent index and several useful plans.

R. C. C. CLAY.

FOLKLORE IN THE ENGLISH AND SCOTTISH BALLADS. By LOWRY C. WIMBERLY. *University of Chicago Press.* 1928. pp. 462. 25s.

Professor Wimberly has made 'an exhaustive survey of those customs and beliefs that in the English and Scottish popular ballads centre about religion and magic'. This book is the result of his labours; and the multitude of references in the text, and the length of the bibliography at the end are evidence of the depth of those researches. It is not a popular book, but folklorists will welcome it, and will appreciate the well-arranged and comprehensive index—a feature often very inadequate in technical books.

The author expresses his indebtedness to Professor Child's spadework, and proclaims his belief in the basic pagan character of ballads, although he admits that some are tinged with Christian thought. The book is divided into four parts:—the Pagan Underworld, subdivided into Ideas of the Soul, the Grave World, the Otherworld journey, and the locality and description of the Otherworld; Pagan Otherworld Beings, with chapters on witches, fairies and ghosts; the Otherworld Spell, including modes of enchantment and disenchantment; the Christian Otherworld—Heaven, Hell and Purgatory. There is an introduction to each part.

R. C. C. CLAY.

CERAMICA DE MARLES. By J. SERRA VILARO. *Publication of the Musaeum Archaeologicum Dioecesanum. Solsona.* 1928. pp. 38.

This well-illustrated pamphlet, a characteristically excellent publication of the Solsona Museum, describes the pottery and other furniture of a habitation-site in the Marles district of St. Pau de Pinos (prov. Barcelona). The culture represented by the material is that of the special 'Inner Catalan' province of Spain during the first period of the Early Iron Age, and its distinguishing ceramic-type is a large and coarse ovate pot, having a broad flaring lip, that is ornamented round the neck by an applied band (indented by finger-imprints or 'maggot' patterns), and on the body by rough zig-zag slashes and comb markings.

In itself such a clumsy ware suggests at first glance a Stone or Copper Age date for the sites where it occurs, but that they belong without doubt to a later period is attested not only by the small bronze awls and arrow-tips and scraps of iron that are sometimes found on these settlements (there was a splinter of iron-ore at Marles), but also by the occasional discovery thereon of vases of accredited Hallstatt types such as were deposited in the coastal urn-fields. Mossen J. Serra Vilario, therefore, while recognizing the primitive character of the material that he describes, has no choice but to declare it as belonging to the Early Iron Age, and in this special instance he believes himself able to confirm that dating by pointing out the resemblances between certain handled bowls from Marles and Italian bowls from Villanova and other sites in Italy.

T. D. KENDRICK.

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THE CLASH OF CULTURE AND THE CONTACT OF RACES ; an anthropological and psychological study of the laws of racial adaptability, with special reference to the depopulation of the Pacific and the government of subject races. By G. H. PITT RIVERS. *Routledge*. 1927. pp. xiv, 312. 18s.

The writer of this essay in 'practical anthropology' is a grandson of one of the founders of the comparative study of culture ; he studied under Dr William McDougall at Oxford, and has seen native societies for himself in New Guinea and other parts of the Pacific, in New Zealand and among Australian aborigines ; he has made some studies of the causes of growth and decline of population among civilized peoples also ; and he evidently owes much to the teaching of Dr Malinowski, to whom the book is dedicated. Starting from the fact of special variability, and, consequently, not only the adaptability of this or that variety of mankind to special regional surroundings, but the diverse specific reactions of different varieties to the same regional conditions, he reaches a conception of culture as something conditioned by a people's 'heritage of culture-forms', traditions, institutions and the like ; by their 'culture accessories', in the way of material equipment and resources ; and by their 'culture-potential' or 'innate constructive ability'. This last would seem to be correlated with race or breed, but the estimation of it is difficult for lack of 'definite psychological criteria by which to determine either individual or ethnic distinctions'. Comparative study, however, tends to support the rather obvious conclusion 'that the great condition of the decline of any civilization is the inadequacy of the people who are the bearers of it' (p. 4). But inadequate to what ? 'The penalty of too great a progress in the direction of specialization and narrower adaptation is the inability to become adapted to any drastic change in the environment or mode of living forced upon a type from outside and not evolved by itself' (p. 7). Such adaptability, or the lack of it, 'is not a purely physical, but a psychophysical question' ; and what Captain Pitt Rivers has tried to do is to supply some of the categories relating to specialization and adaptability.

To take specific instances :—the decline or extinction of many Pacific peoples does not appear to him to be primarily, or mainly, due to introduced diseases, or to defects of hygienic arrangements during the period of Europeanization. What has been mistaken for immunization is, he thinks, the selective replacement of the old native breed by some sort of half-caste or other ; and the rapid decline of native population in certain regions of contact with European culture he attributes to psychological causes, originating in the destruction of the people's interest in life under changed conditions, and reflected in a general insouciance and depression of the native mind, accompanied by a growing disinclination to bear children. He infers that many well-intentioned and physically appropriate attempts to alleviate the effects of European contact or to 'improve the condition of the native' aggravate the trouble because they are further interferences with the régime to which he is accustomed ; as Stevenson put it (*In the South Seas*, p. 41, quoted p. 142) : 'Each change, however small, augments the sum of new conditions to which the race has to become inured'. Most potent amongst such changes, Captain Pitt Rivers believes, are those which affect the marriage system and consequently the intimate personal régime of a people ; and a large part of his essay is devoted to this topic, and to the arbitrary interferences due to the zeal of Christian (and therefore he believes 'essentially ascetic') missionaries, and also to some extent to administrative neglect of native customary law, and violation of native authority on which the orderly conduct of native society generally depends. Of the clash of religions, the picturesquely gloomy description

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is enhanced by a lurid contrast between idealized opposites 'Hellenic' and 'Puritanical', which are best left to the judgment of students of Hellas and the Puritans; and only a trained psychologist could rightly estimate the value of the distinction between psychic 'regression to phantasy levels' and 'progression to reality levels' as a contribution to the art of governing Pacific islands without depopulating them. For what it all comes to is this, as was sufficiently stated at the outset, that 'the great condition of the decline of any civilization is the inadequacy of the qualities of the people who are the bearers of it'. Lotus-eating it may be, but 'specialization and narrower adaptation' have been carried too far: 'each change, however small, augments the sum of new conditions', and hastens the end. It may have been very wrong of Europeans to explore the Pacific at all; but, in that case, was it so very right for the Maori to occupy New Zealand, or for the Polynesians to spread over Polynesia? There certainly has been much evil wrought, as usual, 'for want of thought, and not for want of heart'; and the worst of that evil has resulted because the opportunity has been let slip by those who had the power to ascertain the facts, and in spite of the warnings and entreaties of those who had the vision, and some of the knowledge, that might have been applied in time to save much. Now retribution has come, and in the grimmest shape. With an abundant, happy and industrious native population, these islands would be a very profitable estate to those who, through the accidents of ownership, are in a position to exploit them; without such natives they are of little use to anyone. But the native population is diminishing with dangerous rapidity, and what still survives is neither industrious nor happy. If this book cannot fairly be said to have suggested a remedy, it has at all events stated the problem, and shown the futility of much that has been done to solve it.

J. L. MYRES.

VORGESCHICHTE VON DEUTSCHLAND. By CARL SCHUCHHARDT.
R. Oldenbourg Verlag, Munich. 1928. pp. viii, 347, and 285 illustrations.

At its modest price of 11 marks bound this book is worth buying for its 285 illustrations, many of objects otherwise rather inaccessible. We must however warn readers against figs. 76-8, where vases of varying age and size are grouped together on the strength of superficial resemblances in form without any indication of scale, and equally against figs. 110-11. Here a late Lausitz jug for example is set beside a Corded beaker in proof of a genetic kinship without reference to the fact that the late Lausitz jug is descended from an earlier type that diverges far more from the alleged neolithic ancestor. So again one late Lausitz vase is compared with an early Walternienburg form, another with a late form from the same group.

These examples illustrate one of the methodological errors which mar the text: reliance on superficial similarities in shape between vessels separated, on the author's own showing, by five or six hundred years and any number of miles, as evidences of genetic relationships between cultural groups without attempting to find the intermediate forms in space and time (which are often actually non-existent), to work out in detail the evolutionary history of the type or even to be certain that genuinely characteristic forms have been selected. In fact the book must not be taken as typical of contemporary German prehistory and would not be accepted as orthodox by Schuchhardt's countrymen even when, as often happens, his keen insight has led him to a correct result, e.g., the derivation of the Bronze Age spiral decoration of Scandinavia from the Danube area. His chronology, too, in which the Nordic new Stone Age lasts from 3000-2000 B.C. is more reasonable than most systems.

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Schuchhardt denies the Scandinavian origin of the Indo-Germans ; they would have arisen in Thuringia from some remote palaeolithic stock (links still missing) and spread thence as the Corded Ware folk to Denmark, Finland, Switzerland, etc. So too he represents the Lausitz culture (1400-1200) as descended from a central German neolithic (before 2000!) stock, that of the southwest German urnfields from the equally neolithic Danubians. The Hellenic elements in the Hallstatt and La Tène cultures are brought through south Russia to the absolute exclusion of Marseilles and Aquileia. And sometimes statements are admitted that are distinctly misleading, as for instance that in the Late Bronze Age of southwest Germany urnfields replace barrows, whereas both methods of burial coexist side by side. None the less the book contains many excellent ideas and good accounts of type sites. It covers the period from Acheulian to Merovingian times.

V. G. CHILDE.

THE FORUM AND THE PALATINE. By CHRISTIAN HÜLSEN; *translated by* H. TANZER. *New York : A. Brudenhausen.* 1928. \$3.50.

This handsome book, with its 30 illustrations in the text, 65 photographic plates, and one folding plan, will be of service to all those who wish to make or renew acquaintance with the monuments of the Forum and the Palatine. The text, written by a master of his subject, has been well translated and has undergone revision by the author since the German original appeared. Until the official reports of the excavations of the last thirty years are published no definitive account can, of course, be written, but Professor Hülsen was present in Rome during their progress and has therefore the signal advantage of being able to describe them at first hand. Though it is less detailed than the other works in which he has dealt with the Forum and Palatine, it contains much new information, and will be welcome both to ordinary readers and to scholars, who will find the bibliography at the end of considerable service if they wish to enter into the minutiae of the subject.

THOMAS ASHBY.

LAS PINTURAS RUPESTRES DE LOS ALREDEDORES DE TORMÓN (TERUEL). By HUGO OBERMAIER and HENRI BREUIL. *Extr. del Bol. de la R. Acad. de la Hist.* 1927.

A study of fresh examples of the palaeolithic naturalistic art of east Spain is always welcome and the results obtained in the present case by Drs Obermaier and Breuil are exceedingly interesting. The new sites are not so very far from the well-known painted rock-shelters near the village of Albarracin, described many years ago (1911) in *L'Anthropologie*. At the new sites a number of paintings of animals and human beings, including one or two superpositions, have been studied. Some while ago Monsieur Breuil demonstrated at another site (Minateda) a chronological sequence of more than a dozen different styles of painting, which were determined by careful study of superpositions. These results, from the point of view of styles, have been applied at the new sites and a number of the styles in the Minateda sequence are seen to occur. Further work on these lines is much needed. A further point of interest is that the authors consider some at least of the paintings to be dated as far back as Late Aurignacian times. A reproduction is given of a hitherto unpublished figure of a stag very similar in style to many of the painted stags in the Spanish art group II, which was found painted on a block of stone in, and completely covered by, a Late Aurignacian deposit near Sergeac (Dordogne, France). It has been clear for a long time that all the paintings belonging

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to the Spanish art group II are not of the same age : to date some of them as far back as Late Aurignacian times is interesting and important. The article itself is well designed. After a short description of the sites, their geographical position, and how to get to them, an account of the paintings is given. This concludes with a résumé of the results obtained, in which references are given to a large key figure on which the drawings are reproduced in black. Finally there are no less than eleven plates printed in red. One wonders how much our English printers would have charged for 'making' such an article!

M. C. BURKITT.

STUDIA NEOPHILOLOGICA: a Journal of Germanic and Romanic Philology.

Edited by R. E. ZACHRISSON. Vol. I, nos. 1 and 2. Uppsala: A. B. Lundequistika Bokhandeln. Subscription 6s 6d.

A very cordial welcome must be extended to the first number of this new periodical. It is clear that it is not going to confine itself to matters philological in any narrow sense of the word but rather in the wider application of that term as it prevails among continental scholars. Of the four main articles two should be of interest to many readers of ANTIQUITY. These are the editor's own paper on 'Germani, the Name and its Early History' and Dr Wallenberg's 'Studies in Old Kentish Charters', both in English. In the paper on the 'Germani' Zachrisson, following up various lines of attack, endeavours to solve the long-standing problem of the origin and meaning of this name and to bring it into line with his general view that all early tribal names tend to be of toponymic origin. Ranging over a variety of evidence brought to bear on the problem from the most diverse sources he comes to the conclusion that *Germani* was the original name of a Celtic tribe settled some centuries before our era in the Alpine districts of south central Europe, possibly in the valley of the Italian river *Germanasca*. He believes that men of this tribe are mentioned side by side with the *Galli Insubres* in the inscription executed at Clastidium by the Emperor Augustus in memory of the Roman victory there in 222 B.C. These Alpine Germani, probably in alliance with peoples of Germanic (? Teutonic) origin, invaded and conquered Belgium. These conquerors of Belgium were held in great respect by both the Gauls and their Teutonic neighbours, who in course of time adopted their name. Etymologically the name means 'people of the roaring torrent'. Such in brief outline is the view presented with masterly clearness by Zachrisson. No finality is possible in matters of this kind, but here we certainly have a brilliant effort to compass all the various problems which surround the vicissitudes of a name which has been the subject of more than one controversy.

Wallenberg is one of the steadily growing band of able Swedish scholars who are devoting themselves to the study of our personal and place-names and here we have the first published fruits of his study of the place-names of Kent. He is concerned here with some difficult points of identification and interpretation and it is clear that he is a thorough master of all the problems which arise from a study of the ancient Kentish charters. His suggestion of an OE *pynd*, 'enclosure', a variant of the more usual *pund*, is amply confirmed by comparative evidence from the neighbouring county of Sussex. On the other hand, in dealing with the difficult *hredles stede* of another charter, which he believes is for *hreod-leah-stede*, 'place marked by a rush-clearing', with inorganic repetition of the *s*, he is probably wrong in associating this name with neighbouring places called High Reed, Copreed and the like. These almost certainly contain the element *reed*, very common in Sussex place-names in the Weald, going back to ME *rede* and occasionally to ME *rude*,

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which is descended from an unrecorded OE *hrīed*, *hrȳd*, 'clearing'. Place-names with this element are found quite freely in places where there can be no question of reeds.

Of two 'Miscellaneous Notes' one concerns itself with 'Early Germanic Personal Names'. Of five books reviewed two deal with personal names, Scandinavian and French, and one with the names of the peoples who figure in *Beowulf*. This again indicates how broadly cultural are the interests of the new periodical. It may be added that the articles, reviews, etc., in this number are all in either French or English, and in the note on 'Early Germanic Personal Names' the editor puts at the disposal of the public at large the important results of the Swedish work of Professor von Friesen, which would otherwise be inaccessible to the majority of the English public.

A long and happy career to this cheap and well-produced periodical!

ALLEN MAWER.

LA PITTURA DEI ROMANI. By PIRRO MARCONI. Rome : *Biblioteca d'Arte*.

The purpose of this book does not seem altogether clear. From the preface it would seem as if the author had set out to prove the independence and excellence of Roman art in general and of Roman painting in particular, and had found himself unable to do so. He protests, and not without reason, as others, and notably Mrs Strong, have done before him, against such arguments as this: that the portraits of the Roman period found in Egypt cannot be Roman because they are beautiful, when as a fact there is nothing distinctively Egyptian to be found in them. But he is apparently shocked at finding the Romans using anything so ephemeral as the fourth Pompeian style of painting: 'logically' he says, 'we should like to see the Roman create something massive, and be eternal and substantial like his own buildings': and he accounts for it by the 'desire for leisure, of a state of mind entirely different from the feverish activity of every day' (pp. 97, 98). And finally we find him obliged to admit that 'the Roman painter is not master of his material; he is the artist who has not been willing to explore his own mind, to develop all its possibilities; and the lack of clearness in mental vision is paralleled by the scantiness of his technical resources; there is no complexity, no resource; he always has to have recourse to the same tricks, the same expedients, and he rests content with their poverty. There is no basis of solid knowledge of a common character, which might have served as a sure foundation on which the works of individual artists could have been raised. This deficiency is profoundly to be deplored, for it made it impossible for the Roman to reach a complete style, real order, a great school of painting . . . If we remove a few works of Hellenistic "ambiente" and several of the portraits, what other of these works gives us the feeling of eternity, or impresses us with the depth of its feeling for life?' (p. 86).

Throughout the book the style is somewhat too subjective—a frequent fault nowadays—and the inconsistency which we have mentioned appears to pervade the whole. Take for example the passage on p. 22 when he says, 'The Romans do not copy but repeat with approximate correctness, changing and altering, taking away and adding; their works must be judged by themselves, good or bad, and we must seek in them Roman painting and not a Greek art of painting which is for ever lost'. Rizzo has, however, shown that there was a definite cycle of paintings of scenes in the Homeric poems, which influenced Vergil to a considerable extent, and which we can trace in the Pompeian paintings. There is no doubt, though the author does not lay enough emphasis on it, that the weakness of Roman art lay mainly in the limits which it imposed upon itself. To take a large wall and voluntarily divide it up into panels and spaces by means of sham

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architecture, instead of dealing with it freely, was to impose fetters on art from which it was never able to liberate itself. And there is also no doubt that Delbrück was right when he traced many of the characteristics of the architectural framework and background of these paintings, and especially their false perspective, to the influence of the stage—to scene-painting of the Hellenistic period. Then our author ought to have noted that (as I have already pointed out)* the influence of the Columbaria, daintily decorated though they are, came in at the end of the Republic to rivet the fetters still more firmly; and we have in the Golden House tiny paintings almost invisible to the naked eye at the top of lofty rooms—small panels fitted into large architectural schemes, sometimes (as in the two famous ceilings, the Volta d'Oro and the room of the Laocöon) of considerable excellence but sometimes also of inferior quality. It may be noted here, by the way, that the little panels from the Rospigliosi Palace, now in the Museo delle Terme (figs. 131, 133, 154, see p. 101) formed part of a large composition, a drawing of which is to be found in the Topham collection at Eton (iv. 39), with a duplicate at Holkham, which I published in the same volume of the *Papers*. The author's knowledge of the drawings of paintings no longer extant, which are indispensable for the study of painting in the city of Rome itself, is unfortunately practically *nil*: and, indeed, he appears to proceed to explain Rome by Pompeii, and not, as should surely be the case, in the reverse direction, having regard to the relative importance of the two places. It is of course most unfortunate that the important paintings of the end of the Republic and the early Empire, which have been discovered on the Palatine, have not yet been properly published.

The illustrations are numerous and fairly good, but if the well-known frescoes of the Villa Itern at Pompeii are to be reproduced once more—and they certainly deserve to be—the photographs should be less flat in tone. One last grumble—the price of the book is not given, an omission which cannot be too strongly condemned. THOMAS ASHBY.

LYSIPPOS. By FRANKLIN P. JOHNSON. *Durham, North Carolina, U.S.A.*; Duke University Press. [*Great Britain*: Cambridge University Press. 37s 6d]. 1927. pp. xii, 334, and 62 plates.

When we have no positive piece of evidence of the kind that the Hermes at Olympia provides in the case of Praxiteles, we have to arrive at our estimate of an ancient sculptor's style by a careful sifting of literary references and scanty material remains; in particular we have to assess the value of Graeco-Roman copies removed in varying degrees from their originals. In such discussions, words like 'perhaps', 'possibly', 'probably', assume Mesopotamian importance; individual feelings may be strong, yet, if set out with the full array of 'ifs' and 'buts', they are apt to carry slight weight with other people. Yet that they should be so set forth is the only satisfactory method, although for the non-specialist reader the dogmatic statement is easier. We may say at once that this book by Dr Johnson is a most painstaking account of the patient researches of several years, and is clearly an important addition to the bibliography of 4th century Greek sculpture. Its exhaustive documentation alone would serve to make it a work of very great usefulness. But we do not feel—and it is a disappointment, though perhaps one that we should have anticipated under the circumstances—that there emerges from its pages a coherent, convincing characterization of the work of Lysippos; the whole question seems to remain on a scholastic plane. We have a feeling that, hoping for bread, we have received—appropriately, perhaps, in a treatise on sculpture—stone.

* See *Papers of the British School at Rome*, vii, 123.

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Before the discovery at Delphi of the Agias, the Apoxyomenos was accepted, on the strength of a single passage in Pliny, as typical of the style of Lysippos; and with the majority it has not lost its position. The finding of the Agias caused a stir, which was increased by the discovery in a traveller's diary written a century earlier of a copy of an inscription at Pharsalos identical, except for one word, with that on the base of the Agias, but with the added information that the original Agias was a work of Lysippos (thus confirming Homolle's declaration that the Delphi statue fulfilled the conditions necessary in a work by, or after, that sculptor); but once this stir had settled down, most authorities maintained their allegiance to the Apoxyomenos; some were prepared to admit the Agias as a less characteristic work; others refused to take it into account; only a few, rejecting the Apoxyomenos, based their Lysippic canon on the newly found statue. The fact that a leading English authority was among their number has perhaps made the position of the Agias more secure in this country than elsewhere.

Dr Johnson begins by describing the Argive-Sicyonian school of the 5th and 4th centuries—most of its artists are but names to us. He points out that while the Peloponnesian successors of Polykleitos were not merely his slavish imitators, none of them made vital innovations.

Passing to Euphranor and Skopas, he thinks it highly probable that the former had some influence on Lysippos; he admits that he is a sadly intangible artist, but is inclined to see in the Antikythera—(Cerigotto—) wreck bronze the type of his Paris, and to support the attribution to him of the Alexander Rondanini type and Hekler's suggestions as to the type of his 'mulier admirans et adorans'. Skopas—whose influence on Lysippos has long been recognized—is necessarily treated summarily. The date of the Tegea temple is discussed but the most important point to notice is the attribution to him of the Capitoline Aphrodite type.

For the date of Lysippos himself, the evidence is mainly epigraphical. The author puts it at about 375–290, but the evidence for the latter date is slender. Inscriptions mentioning his name are enumerated; perhaps the new publication, 'Clara Rhodos', will shed some light on the one which was denied to his enquiries. He was more fortunate at Kos, whence he publishes from a squeeze and conjectural restorations a metrical inscription referring to the statue of a boy by 'old' Lysippos. It is refreshing to read, in the midst of this intensive chronological essay, of the invention of a wine-jar by Lysippos. Dr Johnson does not attempt to identify the type from copies, though one would have expected some to survive.

Three chapters are devoted to the author's canon for Lysippic art. He finds his starting-point in the Vatican Apoxyomenos, which fulfils all that Pliny's account suggests to him, including a hint of effeminacy. Yet he is not altogether happy about the chorus of acceptance with which this statue has been identified. He would like to feel sure that it cannot be the 'Perixyomenos' recorded to have been made by Lysippos' son Daippos.

Yet on the whole he is prepared to accept the identification, and in practice we find that he continually refers to the Apoxyomenos as his canon of Lysippic style; in particular he stresses the importance of the triangular depression between the waist-muscles, observing that this recurs in some copies of the Herakles Epitrapezios. This statuette, it is said, adorned the tables successively of Alexander, Hannibal and Sulla: 'the only one of Lysippos' works which can be identified with certainty on external evidence'. By comparison the Eros with the Bow is pronounced Lysippic.

Dr Johnson's estimation of the Agias will to some seem too low. While possessing

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'some distinction, especially in the face', it was not by Lysippos, nor is it a copy of a work of his; it is an original, and when Alexander saw it he 'felt sorry for (his friend) Daochos . . . and asked Lysippos to make a good statue to be set up at Pharsalos'. Hence the duplicate inscription at Pharsalos, which Dr Johnson, on what appear scanty grounds, argues was later, not earlier, than the one at Delphi. The Agias falls into line with the 'Philandridas Head' and the stele from the Ilissos, and so may well have emanated from an Attic source. The absence of statues which can be regarded as connecting links between the Agias (as an early work of Lysippos) and the Apoxyomenos preclude him from admitting the former work into the list of Lysippos' statues. The only possible link he knows is a head of Helios from Trianda now at Copenhagen.

This much has been necessary to make clear the writer's standpoint in regard to Lysippos' style; considerations of space forbid a detailed account of the conclusions that he draws from it. By comparative methods he claims for Lysippos the Seilenos with the Infant Dionysos, the Meleager (though contamination of types has obscured the origin in some copies), and the Ny Carlsburg bearded head; the Ganymede, too, relying upon the judgment of Amelung. To this list may be added the originals of the bust of Seleukos Nikanor, the Socrates of the Museo Nazionale type (with which he would indirectly connect the statuette recently acquired by the British Museum), and the bronze statuettes in Naples representing a mounted and a riderless horse which are supported upon rudders; he considers the last to be after the monument made by Lysippos to commemorate the battle of the Granikos. Then we have his Herakles Epitrapezios and the Herakles of the Farnese type, and the Eros with the Bow. To these are to be added three copies of his portrait of Alexander, of which the Azaraherm type is the most faithful, and is best represented by the copy at Geneva, of which an illustration forms the frontispiece. A more doubtful candidate is the Medici Aphrodite, of which a supposed copy had an interesting history in 14th century Siena.

This sketch necessarily does scant justice to Dr Johnson's thorough-going examination of all possible or suggested candidates for Lysippic origin; it can only indicate the main lines of the results of his enquiry. Lysippos emerges as an artist difficult to deal with, partly on account of the rarity of satisfactory copies in marble of works originally executed in bronze, or of works whose size or subject precluded accurate copying; but who by his predilection for obscuring the torso by crossing it in various ways with the arms, broke away from the unilateral and instituted the multilateral tradition. Sculpture in the round, long in bondage to the traditions of an art originally ancillary to architecture, becomes free. Lysippos thus paves the way for the elaborate poses and groupings of the Hellenistic sculptors. His connexions are with the future, not the past.

The illustrations are of varying quality. We are grateful for one or two which have never appeared before, but in general they cannot be greatly commended, considering the price of the book. There is a collection of 96 passages from ancient authorities, with a parallel translation usually borrowed from standard sources, even to the extent of repeating the old-fashioned incorrect 'brass' for 'bronze'. This juxtaposition would cause confusion to those who relied solely on the English version. Where an original translation is provided, it is not always happy. Some misprints call for revision, notably on p. 55, apparently caused by the repetition of the same phrase at an interval of a few lines.

W. L. CUTTLE.

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